



11. Facing south along SR 26 toward 827 Water St at western end of APE



12. Facing east along SR 26 toward project area at western end of APE



13. Facing southwest along SR 26 toward 831 Water St at western end of APE



14. Facing southwest along SR 26 toward 833 Water St at western end of APE



15. Facing south along SR 26 toward 835 Water St at western end of APE



16. Facing southeast along SR 26 toward JRDS at western end of project area



17. Facing south along SR 26 toward JRDS at western end of project area



18. Facing northeast toward Morton Hawkins House at northeastern end of APE



19. Facing east toward Morton Hawkins House from driveway



20. Facing southeast toward Morton Hawkins House from driveway

SR 26 over Salamonie River Consulting Party List, Des 1600828

Participating Consulting Parties Highlighted

CP Name	Organization	email
Danielle Kauffmann	IDNR - DHPA/SHPO	dkauffmann@dnr.in.gov
Wade Tharpe	IDNR - DHPA/SHPO	wtharpe@dnr.in.gov
Jessie Russet	Indiana Landmarks Eastern Regional Office	jrusset@indianalandmarks.org
Jane Spencer	Jay County Historian	jane.a.spencer@gmail.com
Rob Weaver	Jay County Historical Society	rob.weaver@wpgwradio.us
Richard L. Huffman	Jay County Commissioner	chuffman@firstmerchants.com
Chad Aker	Jay County Commissioner	ch_aker@yahoo.com
Mike Leonhard	Jay County Commissioner	leonhardmike@gmail.com
Kenneth Wellman	Jay County Highway Department	jchighway@gmail.com
Dan Watson	Jay County Highway Department	Danielww7487@yahoo.com
Randy Geesaman	Mayor of Portland	mayorgeesaman@thecityofportland.net
	Portland Street Department	streetsuperintendent@thecityof
		ahuffman@jaycodev.org
Ami Huffman	Portland Historic Preservation Commission	jlcooper@ccrtc.com
Dr. James Cooper		indianabridges@sbcglobal.net
Paul Brandenburg	Historic Spans Task Force	
Tribes		
	Eastern Shawnee Tribe of Oklahoma	
	Miami Tribe of Oklahoma	
	Peoria Tribe of Indians of Oklahoma	
	Pokagon Band of Potawatomi Indians	
	Forest County Potawatomi Community	
	Delaware Tribe of Indians, Oklahoma	

Karen Wood

From: Karen Wood
Sent: Friday, June 28, 2019 3:32 PM
To: Slider, Chad (DNR); jrussett@indianalandmarks.org; jane.a.spencer@gmail.com; research@jaycountyhistory.org; chuffman@firstmerchants.com; ch_aker@yahoo.com; leonhardmike@gmail.com; jchighway@gmail.com; danielww7487@yahoo.com; mayorgeesaman@thecityofportland.net; streetsuperintendent@thecityofportland.net; ahuffman@jaycodev.org; 'JLCooper@CCRTC.com'; Indianabridges@sbcglobal.net
Cc: Kennedy, Mary; Kumar, Anuradha; Branigin, Susan; Miller, Shaun (INDOT); Carmanygeorge, Karstin M; John Handke; Bonnie Money; Mustard, Susan
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040), Portland, Jay County, Indiana
Attachments: SR26overSalamonieRiver_des1600828_ECL_2019-6-28.pdf

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, Des. No. 1600828.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties. The following agencies/individuals are being invited to become consulting parties:

Indiana State Historic Preservation Officer
Indiana Landmarks Eastern Regional Office
Jay County Historian
Jay County Historical Society
Mayor of Portland
Portland Street Department
Portland Historic Preservation Commission
Jay County Commissioners
Jay County Highway Department
Dr. James Cooper
Historic Spans Task Force
Eastern Shawnee Tribe of Oklahoma
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians
Delaware Tribe of Indians, Oklahoma
Forest County Potawatomi Community

This letter is part of the early coordination phase of the environmental review process requesting comments associated with this project. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Please use the above Des. Number and project description in your reply and your comments will be incorporated into the formal environmental study.

Please review the attached letter, which is also located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with your comments on any historic

resource impacts incurred as a result of this project so that an environmental report can be completed. We also welcome your related opinions and other input to be considered in the preparation of the environmental document. If a hard copy of the materials is needed, please respond to this email with your request within seven (7) days. A hard copy has been mailed to SHPO on 6.28.2019.

Consulting parties have thirty (30) calendar days from receipt of this information to review and provide comments. If we do not receive a response from an invited consulting party within the time allotted, the project will proceed consistent with the proposed design. **Therefore, if we do not receive a response within thirty (30) days, your agency or organization will not receive any further information on the project unless the scope of work changes.**

Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Thank you in advance for your input,

Karen Wood

Environmental and Cultural Resources Manager



"Let the science and research of the historian find the fact and let his imagination and art make clear its significance."

George Trevelyan

Karen Wood

From: Kennedy, Mary <MKENNEDY@indot.IN.gov>
Sent: Friday, June 28, 2019 3:45 PM
To: thpo@estoo.net; Diane Hunter; 'lpappenfort@peoriatribes.com'; Matthew.Bussler@pokagonband-nsn.gov; lheady@delawaretribe.org; Michael LaRonge
Cc: Miller, Shaun (INDOT); Allen, Michelle (FHWA); Karen Wood
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040), Portland, Jay County, Indiana
Attachments: SR26overSalamonieRiver_des1600828_ECL_2019-6-28.pdf

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, Des. No. 1600828.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties. The following agencies/individuals are being invited to become consulting parties:

Indiana State Historic Preservation Officer
Indiana Landmarks Eastern Regional Office
Jay County Historian
Jay County Historical Society
Mayor of Portland
Portland Street Department
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Jay County Commissioners
Jay County Highway Department
Dr. James Cooper
Historic Spans Task Force
Eastern Shawnee Tribe of Oklahoma
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians
Delaware Tribe of Indians, Oklahoma
Forest County Potawatomi Community

This letter is part of the early coordination phase of the environmental review process requesting comments associated with this project. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Please use the above Des. Number and project description in your reply and your comments will be incorporated into the formal environmental study.

Please review the attached letter, which is also located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with your comments on any historic resource impacts incurred as a result of this project so that an environmental report can be completed. We also welcome your related opinions and other input to be considered in the preparation of the environmental document. If a hard copy of the materials is needed, please respond to this email with your request within seven (7) days. A hard copy has been mailed to SHPO on 6.28.2019.

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Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Thank you in advance for your input,

Mary E. Kennedy

Historic Bridge Specialist

100 N. Senate Ave., Room N642-ES

Indianapolis, IN 46204

Office: (317) 232-5215

Email: mkennedy@indot.in.gov



**** Historic Property Report (HPR) guidelines can be found [here](#)**

***Design Memorandum 18-02 regarding the procedures for Historic Bridge Alternatives Analysis Documents can be found here: <http://www.in.gov/dot/div/contracts/standards/memos/2018/18-02%20ta%20Historic%20Bridge.pdf>**

***For the latest updates from INDOT's Cultural Resources Office, subscribe to the Environmental Services listserv: <https://www.in.gov/indot/3217.htm>**



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N642
Indianapolis, Indiana 46204

PHONE: (317) 233-6795

Eric J. Holcomb, Governor
Joe McGuinness, Commissioner

June 28, 2019

This letter was sent to the listed parties.

Re: Dual Review Project: SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Des. No. 1600828

Dear Consulting Party (see attached list),

The Indiana Department of Transportation (INDOT), with funding from the Federal Highway Administration (FHWA), proposes to proceed with the SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, Des. No. 1600828. Green 3, LLC is a subconsultant to USI Consultants, Inc., who is under contract with INDOT to advance the environmental documentation for the referenced project.

This letter is part of the early coordination phase of the environmental review process requesting comments associated with this project. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Please use the above Des. Number and project description in your reply and your comments will be incorporated into the formal environmental study.

The proposed undertaking is on State Road (SR) 26 over the Salamonie River, located 0.75 mile east of SR 27, in Portland, Jay County. It is within Wayne Township, Portland USGS Quadrangle in Section 21, Township 23 North, Range 14 East.

The purpose of this bridge project is to restore the crossing of SR 26 over Salamonie River to a satisfactory condition and increase the safe carrying capacity of the bridge from the current 28 tons to 36 tons. The need for the project is that the existing bridge does not meet current INDOT design criteria for capacity or shoulder width. More details about the purpose and need of the project will be forthcoming in the Historic Bridge Alternatives Analysis document.

Bridge No. 026-38-03430 A (NBI 007040) is a 150-foot-long one-span steel parker through truss built in 1941. The bridge has a clear roadway width of 28 ft. on a zero-degree skew, featuring a concrete cast-in-place deck with non-standard steel bridge railings upon concrete abutments on spread footings. The bridge carries SR 26, which is consisted of two 11 ft. travel lanes complete with two-foot-wide shoulders each and six-inch by six-inch concrete curbs. This project is currently scheduled for letting in April 2022. It is anticipated that the project will require right-of-way acquisition; the amount (temporary and/or permanent) is undetermined at this time. No relocations of residents or businesses will be required for this project.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic and archaeological properties. In accordance with 36 CFR

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800.2 (c), you are hereby requested to be a consulting party to participate in the Section 106 process. Entities that have been invited to participate in the Section 106 consultation process for this project are identified in the attached list. Per 36 CFR 800.3(f), we hereby request that the Indiana State Historic Preservation Officer (SHPO) notify this office if the SHPO staff is aware of any other parties that may be entitled to be consulting parties or should be contacted as potential consulting parties for the project.

The Section 106 process involves efforts to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. For more information regarding the protection of historic resources, please see the Advisory Council on Historic Preservation's guide: *Protecting Historic Properties: A Citizen's Guide to Section 106 Review* available online at <https://www.achp.gov/sites/default/files/documents/2017-01/CitizenGuide.pdf>.

Per the terms of the "Programmatic Agreement Regarding Management and Preservation of Indiana's Historic Bridges" (Historic Bridges PA), the FHWA-Indiana Division will satisfy its Section 106 responsibilities involving "Select" and "Non-Select" bridges through the Project Development Process (PDP) of the Historic Bridges PA (Stipulation III). Because Bridge No. 026-38-03430 A (NBI 007040), is a "Non-Select" bridge, the procedures outlined in Stipulation III.B. of the Historic Bridges PA will be followed to fulfill FHWA's Section 106 responsibilities for the project. (A copy of the Historic Bridges PA can be downloaded here: <http://www.in.gov/indot/2530.htm>).

Please note that per the permanent rule issued by the Indiana Department of Natural Resources effective August 14, 2013 (312 IAC 20-4-11.5), INDOT is requesting that this project be subjected to "dual review"; that is, reviewed by the Division of Historic Preservation and Archaeology simultaneously under 54 U.S.C. 306108 (Section 106) and IC 14-21-1-18 (Indiana Preservation and Archaeology Law dealing with alterations of historic sites and structures requiring a Certificate of Approval). Pursuant to Section 11.5(f) of this rule, at the conclusion of the review process we anticipate that the Division Director would issue a letter of clearance exempting this project from obtaining a Certificate of Approval under IC 14-21-1-18. Enclosed with this letter is a detailed list of the consulting parties, including contact information including email addresses, for processing the dual review submission.

The Area of Potential Effects (APE) is the area in which the proposed project may cause alterations in the character or use of historic resources. At this time, no cultural resource investigations have occurred; however, the results of cultural resource identification and evaluation efforts, both above-ground and archaeological, will be forthcoming. Consulting parties will receive notification when these reports are completed.

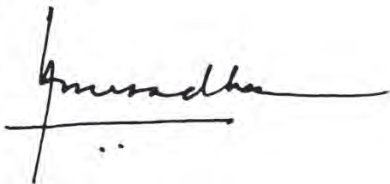
Please review the information and comment within thirty (30) calendar days of receipt. If you indicate that you do not desire to be a consulting party, or if you do not respond, you will not be included on the list of consulting parties for this project. If we do not receive your response in the time allotted, the project will proceed consistent with the proposed design and you will not receive further information about the project unless the design changes.

For questions concerning specific project details, you may contact Karen Wood of Green 3, LLC at 317-634-4110 or karen@green3studio.com. All future responses regarding the proposed project should be forwarded to Green 3, LLC at the following address:

Karen Wood
Environmental and Cultural Resources Manager
Green 3, LLC
1104 Prospect St.
Indianapolis, IN 46203
karen@green3studio.com

Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7492. Thank you for your time, consideration and feedback.

Sincerely,



Anuradha V. Kumar, Manager
Cultural Resources Office, INDOT Environmental Services

Enclosures:
Topographic Map

Distribution List:
Indiana State Historic Preservation Officer
Indiana Landmarks Eastern Regional Office
Jay County Historian
Jay County Historical Society
Mayor of Portland
Portland Street Department
Portland Historic Preservation Commission
Jay County Commissioners
Jay County Highway Department
Dr. James Cooper
Historic Spans Task Force
Eastern Shawnee Tribe of Oklahoma
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians
Delaware Tribe of Indians, Oklahoma
Forest County Potawatomi Community



Division of Historic Preservation & Archaeology • 402 W. Washington Street, W274 • Indianapolis, IN 46204-2739
Phone 317-232-1646 • Fax 317-232-0693 • dhpa@dnr.IN.gov • www.IN.gov/dnr/historic



July 23, 2019

Karen Wood
Environmental and Cultural Resources Manager
Green 3, LLC
1104 Prospect Street
Indianapolis, Indiana 46203

Federal Agency: Indiana Department of Transportation ("INDOT"),
on behalf of Federal Highway Administration, Indiana Division ("FHWA")

Re: DUAL REVIEW: Early coordination letter and proposal for dual review for the SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, Portland, Wayne Township, Jay County (Des. No. 1600828; DHPA No. 24076)

Dear Ms. Wood:

The Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology ("INDNR-DHPA"), which also serves as the staff of the Indiana State Historic Preservation Officer ("Indiana SHPO"), is in receipt of Green 3, LLC's review request submittal and INDOT's early coordination letter, with enclosures, dated June 28, 2019, transmitting your proposal for a dual review, pursuant to 312 Indiana Administrative Code ("IAC") 20-4-11.5, of the aforementioned project in the City Portland. We received this submission on July 1, 2019.

The Indiana SHPO/INDNR-DHPA will review the information submitted under Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108), implementing regulations at 36 C.F.R. Part 800, as well as Indiana Code 14-21-1-18 and 312 IAC 20-4. By copy of this letter, INDNR-DHPA is providing notification of the commencement of the dual review to interested persons and members of the Indiana Historic Preservation Review Board ("Review Board"). Notice of the commencement will also be posted on the division's website (www.in.gov/dnr/historic/7440.htm).

We are not aware of anyone who should be invited to become a consulting party for the purposes of the review of this project under Section 106, beyond those whom INDOT already has invited. For the purposes of Indiana Code 14-21-1-18 and 312 IAC 20-4, we have added the members of the Review Board and additional, potentially interested parties to the list of parties we intend to copy with our comment letters. Anyone receiving an e-mailed copy of this letter who *does not wish to receive future copies of our correspondence about this project* is asked to reply by e-mail to dkauffmann@dnr.in.gov or to (317) 232-0582 or by letter to the address in our letterhead and advise us that he or she does not wish to receive any further copies of our e-mails on this project.

We see in INDOT's June 28 letter that FHWA will satisfy its Section 106 responsibilities involving "Select" and "Non-Select" bridges through the Project Development Process of the "Programmatic Agreement Regarding Management and Preservation of Indiana's Historic Bridges." We note within the *Indiana Historic Bridge Inventory*, the subject bridge that carries SR 26 over Salamonie River (Bridge No. 026-38-03430 A; NBI 007040) is listed as eligible for listing in the National Register of Historic Places under Criterion C, and classified as a "Non-Select" bridge.

As INDOT's June 28 letter indicates, additional information regarding aboveground historic resources and archaeological resources as well as the Historic Bridge Alternatives Analysis document are forthcoming. Once the indicated information is received, the Indiana SHPO will resume identification and evaluation procedures for this project. Please keep in mind that additional information may be requested in the future.

For the benefit of those recipients of a copy of this letter who are not Section 106 consulting parties, please be aware that a copy of INDOT's June 28 letter can be found online at [http://erms.indot.in.gov/Section 106Documents/](http://erms.indot.in.gov/Section%20106Documents/). From there, search by this project's designation number: 1600828.

If you have questions regarding our dual review of the aforementioned project, please contact INDNR-DHPA. Questions about archaeological issues should be directed to contact Wade T. Tharp at (317) 232-1650 or wtharp1@dnr.in.gov. Questions about historic buildings or structures pertaining to this review should be directed to Danielle Kauffmann at (317) 232-0582 or dkauffmann@dnr.IN.gov.

In all future correspondence regarding the dual review of this SR 26 over Salamonie River Bridge Project in Portland, Jay County (Des. No. 1600828), please refer to DHPA No. 24076.

Very truly yours,



Beth K. McCord
Deputy State Historic Preservation Officer
Director, Division of Historic Preservation and Archaeology

BKM:DMK:dmk

EMC to federal and state agency or consultant staff members:

Michelle Allen, FHWA
Robert Dirks, P.E., FHWA
Anuradha Kumar, INDOT
Mary Kennedy, INDOT
Shaun Miller, INDOT
Susan Branigin, INDOT
Shirley Clark, INDOT
Anthony Ross, INDOT
Karen Wood, Green 3, LLC
Beth K. McCord, INDNR-DHPA
Danielle Kauffmann, INDNR-DHPA
Wade Tharp, INDNR-DHPA

EMC to Indiana Historic Preservation Review Board Members:

J. Scott Keller, Review Board
Anne Shaw Kingery, Review Board
Daniel Kloc, AIA, Review Board
Jason Larrison, AIA, Review Board
Chandler Lighty, Review Board
Joshua Palmer, AIA, Review Board
April Sievert, Ph.D., Review Board
Christopher Smith, Deputy Director, INDNR, and Chairman, Review Board

EMC to potentially interested persons:

Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi Community
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians
The Honorable Randy Geesaman, Mayor, City of Portland,
and member, Portland Historic Preservation Commission
Ami Huffman, Portland Historic Preservation Commission
Portland Street Department
Chad Aker, Jay County Commissioner
Richard L. Huffman, Jay County Commissioner
Mike Leonhard, Jay County Commissioner
Dan Watson, Jay County Highway Department
Kenneth Wellman, Jay County Highway Department
Jane Spencer, Jay County Historian
Larry Hiatt and Kay Locker, Jay County Historical Society
Jessie Russet, Indiana Landmarks Eastern Regional Office
James L. Cooper, Ph.D., Professor Emeritus of History, DePauw University
Paul Brandenburg, Indiana Historic Spans Task Force



Miami Tribe of Oklahoma

3410 P St. NW, Miami, OK 74354 • P.O. Box 1326, Miami, OK 74355
Ph: (918) 541-1300 • Fax: (918) 542-7260
www.miamination.com



July 24, 2019

Shaun Miller
Archaeological Team Lead
Cultural Resources Office, Indiana DOT
575 North Pennsylvania Street
Indianapolis, IN 46204

Re: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040),
Portland, Jay County, Indiana – Comments of the Miami Tribe of Oklahoma

Dear Mr. Miller:

Aya, kikwehsitoole – I show you respect. My name is Diane Hunter, and I am the Tribal Historic Preservation Officer for the Federally Recognized Miami Tribe of Oklahoma. In this capacity, I am the Miami Tribe's point of contact for all Section 106 issues.

The Miami Tribe offers no objection to the above-mentioned project at this time, as we are not currently aware of existing documentation directly linking a specific Miami cultural or historic site to the project site. However, as this site is within the aboriginal homelands of the Miami Tribe, if any human remains or Native American cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) or archaeological evidence is discovered during any phase of this project, the Miami Tribe requests immediate consultation with the entity of jurisdiction for the location of discovery. In such a case, please contact me at 918-541-8966 or by email at dhunter@miamination.com to initiate consultation.

The Miami Tribe accepts the invitation to serve as a consulting party to the proposed project. In my capacity as Tribal Historic Preservation Officer I am the point of contact for consultation.

Respectfully,

Diane Hunter
Tribal Historic Preservation Officer

Karen Wood

From: Jessie Russett <jrussett@indianalandmarks.org>
Sent: Thursday, February 13, 2020 2:30 PM
To: Karen Wood
Subject: RE: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 (NBI 007040)

Hello Karen,

Thank you very much for the prompt response and clarification. I apologize, so many of these notifications come by my desk, I was sure I had. Thank you for adding me now though and I look forward to reviewing the HBAA.

Have a great week,

Jessie Russett

Director, Eastern Regional Office at Indiana Landmarks

Indiana Landmarks

838 National Road, PO Box 284

Cambridge City, IN 47327

Ph. 765-478-3172, 800-450-4534

www.indianalandmarks.org

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From: Karen Wood <karen@green3studio.com>
Sent: Thursday, February 13, 2020 1:47 PM
To: Jessie Russett <jrussett@indianalandmarks.org>
Subject: RE: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 (NBI 007040)

Hi Jessie,

Thank you for following up on this project. I didn't receive an email response from you accepting consulting party status following the early coordination letter. I will add you to the accepted list now.

Update on the project: the Historic Bridge Alternative Analysis (HBAA) is still under INDOT review and should be approved soon; of which will be sent out to consulting parties. All of the alternatives will be considered before demolition (that is the layout of the HBAA).

The Historic Properties Above ground report and archaeological report have not been completed yet. I will make sure you receive all the documentation once approved by INDOT for comment.

If you have any questions, please let me know!

Thank you,

Karen Wood

Environmental and Cultural Resources Manager



"Let the science and research of the historian find the fact and let his imagination and art make clear its significance."
George Trevelyan

From: Jessie Russett <jrussett@indianalandmarks.org>
Sent: Thursday, February 13, 2020 1:10 PM
To: Karen Wood <karen@green3studio.com>
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 (NBI 007040)

Hello Karen,

My name is Jessie Russett and I am the Eastern Regional Director of Indiana Landmarks. I am contacting you regarding a bridge project within my region in Jay County just east outside of Portland, Indiana.

I wanted to confirm that I was included as a Section 106 consulting party. I sent a request to participate last June when the early coordination letter was sent out, however I haven't received any notifications until now.

Could you update me as to the status of the Section 106 process and if any alternatives have been considered instead of dismantling the bridge from its current location?

Thank you in advance and I hope to hear from you soon.

Have a great day,

.....
Jessie Russett
Director, Eastern Regional Office at Indiana Landmarks
.....

Indiana Landmarks
838 National Road, PO Box 284
Cambridge City, IN 47327
Ph. 765-478-3172, 800-450-4534
www.indianalandmarks.org

Indiana Landmarks revitalizes communities, reconnects us to our heritage, and saves meaningful places.

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Karen Wood

From: Karen Wood
Sent: Tuesday, March 3, 2020 9:23 AM
To: Kauffmann, Danielle M; Tharp, Wade; Jessie Russett
Cc: Kennedy, Mary; Branigin, Susan; Miller, Shaun (INDOT); Kumar, Anuradha; John Handke; Laney Walstra; Erin Mulryan
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040), Portland, Jay County, Indiana

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Indiana, Des. No. 1600828. The Section 106 Early Coordination Letter for this project was originally distributed on June 28, 2019.

As part of Section 106 of the National Historic Preservation Act, a Historic Bridge Alternatives Analysis (HBAA) has been prepared and is ready for review and comment by consulting parties.

Please review this documentation located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with any comments that you may have. If a hard copy of the materials is needed, please respond to this email with your request within seven (7) days.

Consulting parties have thirty (30) calendar days from receipt of this information to review and provide comment. Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Thank you in advance for your input,

Karen Wood

Environmental and Cultural Resources Manager



"Let the science and research of the historian find the fact and let his imagination and art make clear its significance."

George Trevelyan

Karen Wood

From: Kennedy, Mary <MKENNEDY@indot.IN.gov>
Sent: Tuesday, March 3, 2020 10:04 AM
To: 'Diane Hunter'; Nathan Holth
Cc: Miller, Shaun (INDOT); Allen, Michelle (FHWA); Karen Wood; Greene, Jeremy
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A, Portland, Jay County, Ind - HBAA

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Indiana, Des. No. 1600828. The Section 106 Early Coordination Letter for this project was originally distributed on June 28, 2019.

As part of Section 106 of the National Historic Preservation Act, a Historic Bridge Alternatives Analysis (HBAA) has been prepared and is ready for review and comment by consulting parties.

Please review this documentation located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with any comments that you may have. If a hard copy of the materials is needed, please respond to this email with your request within seven (7) days.

Consulting parties have thirty (30) calendar days from receipt of this information to review and provide comment. Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Thank you in advance for your input,

Mary E. Kennedy

Historic Bridge Specialist

100 N. Senate Ave., Room N642-ES

Indianapolis, IN 46204

Office: (317) 232-5215

Email: mkennedy@indot.in.gov



*For the latest updates from INDOT's Cultural Resources Office, subscribe to the Environmental Services listserv: <https://www.in.gov/indot/3217.htm>



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N642
Indianapolis, Indiana 46204

PHONE: (317) 234-5168

Eric Holcomb, Governor
Joe McGuinness, Commissioner

March 3, 2020

This letter was sent to the listed parties.

RE: Dual Review Project: SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project: Des. No. 1600828; DHPA No. 24076

Dear Consulting Party,

The Indiana Department of Transportation (INDOT), with funding from the Federal Highway Administration (FHWA), proposes to proceed with the SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, Des. No. 1600828. Green 3, LLC is under contract with INDOT to advance the environmental documentation for the referenced project.

This letter is part of the Section 106 review process for this project. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic and archaeological properties. We are requesting comments from you regarding the possible effects of this project. Please use the above Des. Number and project description in your reply and your comments will be incorporated into the formal environmental study.

A Section 106 early coordination letter was distributed on June 28, 2019.

The proposed undertaking is on State Road (SR) 26 over the Salamonie River, located 0.75 mile east of SR 27, in Portland, Jay County. It is within Wayne Township, Portland USGS Quadrangle in Section 21, Township 23 North, Range 14 East.

The purpose of this bridge project is to restore the crossing of SR 26 over Salamonie River to a satisfactory condition and increase the safe carrying capacity of the bridge from the current 28 tons to 36 tons. The need for the project is that the existing bridge does not meet current INDOT design criteria for capacity or shoulder width. More details about the purpose and need of the project are contained in the Historic Bridge Alternatives Analysis (HBAA) document (see below).

Bridge No. 026-38-03430 A (NBI 007040) is a 150-foot-long one-span steel parker through truss built in 1941 and repaired in 1979. The bridge has a clear roadway width of 28 ft. on a zero-degree skew, featuring a concrete cast-in-place deck with non-standard steel bridge railings upon concrete abutments on spread footings. The bridge carries SR 26, which is consisted of two 11 ft. travel lanes complete with two-foot-wide shoulders each and six-inch by six-inch concrete curbs.

Based on the results of the HBAA (see below), if no party elects to take responsibility of the existing structure, the preliminary preferred alternative would be Alternative F: Replacement - Demolition of Historic Bridge and New Bridge Construction. This alternative proposes to remove the existing bridge and construct a new bridge on essentially the same alignment as existing. The new bridge would consist of three spans at 50', 100' and 50' to provide adequate hydraulic capacity for the crossing. The typical section would consist of two 11'-0" travel lanes with 4'-0" shoulders for a clear travel way of 30'-0". Bridge railing would be type FC concrete barriers. The out-to-out measurement of the bridge deck would be 33'-0". Two wall piers and end bents would support the structure. This project is currently scheduled for letting in April 2022. It is anticipated that the project will require 1.75 acres of permanent right-of-way acquisition. No relocations of residents or businesses will be required for this project.

In accordance with 36 CFR 800.2 (c), you were invited to become a consulting party as part of the Section 106 process, or you are hereby invited to become a consulting party as part of the Section 106 process. Entities that have previously accepted consulting party status--as well as additional entities that are currently being invited to become consulting parties--are identified in the attached list.

The Section 106 process involves efforts to identify historic properties potentially affected by the undertaking, to assess the undertaking's effects and to seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. For more information regarding the protection of historic resources, please see the Advisory Council on Historic Preservation's guide: *Protecting Historic Properties: A Citizen's Guide to Section 106 Review* available online at <https://www.achp.gov/sites/default/files/documents/2017-01/CitizenGuide.pdf>.

Per the terms of the "Programmatic Agreement Regarding Management and Preservation of Indiana's Historic Bridges" (Historic Bridges PA), the FHWA-Indiana Division will satisfy its Section 106 responsibilities involving "Select" and "Non-Select" bridges through the Project Development Process (PDP) of the Historic Bridges PA (Stipulation III). Because 026-38-03430 A (NBI 007040) is a "Non-Select" bridge, the procedures outlined in Stipulation III.B. of the Historic Bridges PA will be followed to fulfill FHWA's Section 106 responsibilities for the project. (A copy of the Historic Bridges PA can be downloaded here: <http://www.in.gov/indot/2530.htm>).

Please note that, per the permanent rule issued by the Indiana Department of Natural Resources effective August 14, 2013 (312 IAC 20-4-11.5), INDOT is requesting that this project be subjected to "dual review"; that is, reviewed by the Division of Historic Preservation and Archaeology simultaneously under 54 U.S.C. 306108 (Section 106) and IC 14-21-1-18 (Indiana Preservation and Archaeology Law dealing with alterations of historic sites and structures requiring a Certificate of Approval). Pursuant to Section 11.5(f) of this rule, at the conclusion of the review process we anticipate that the Division Director would issue a letter of clearance exempting this project from obtaining a Certificate of Approval under IC 14-21-1-18. Enclosed with this letter is a detailed list of the consulting parties with contact information, including email addresses, for processing the dual review submission.

The Area of Potential Effects (APE) is the area in which the proposed project may cause alterations in the character or use of historic resources. At this time, no cultural resource investigations have occurred; however, the results of cultural resource identification and evaluation efforts, both above-ground and archaeological, will be forthcoming. Consulting parties will receive notification when these reports are completed.

The Historic Bridge Alternatives Analysis (HBAA) is available for review in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE). You are invited to review these documents and to respond with comments on any historic resource impacts incurred as a result of this project so that an environmental report can be completed. We also welcome your related opinions and other input to be considered in the preparation of the environmental document. If you prefer a hard-copy of this material, please respond to this email with your request within seven (7) days.

Please review the information and comment within thirty (30) calendar days of receipt. If you indicate that you do not desire to be a consulting party or if you have not previously accepted consulting party status and you do not respond to this letter, you will not be included on the list of consulting parties for this project and will not receive further information about the project unless the design changes.

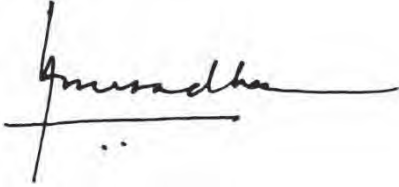
For questions concerning specific project details, you may contact Karen Wood of Green 3, LLC at 317-634-4110 or karen@green3studio.com. All future responses regarding the proposed project should be forwarded to Green 3, LLC at the following address:

Karen Wood
Environmental and Cultural Resources Manager
Green 3, LLC
1104 Prospect St.
Indianapolis, IN, 46203

karen@green3studio.com

Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Sincerely,

A handwritten signature in black ink, appearing to read "Anuradha", written over a horizontal line.

Anuradha V. Kumar, Manager
Cultural Resources Office
Environmental Services

Distribution List:

SHPO, DKauffmann@dnr.IN.gov, WTharp1@dnr.IN.gov

Indiana Landmarks – Eastern Regional Office, jrussett@indianalandmarks.org

Miami Tribe of Oklahoma

Nathan Holth, historicbridges.org

Division of Historic Preservation & Archaeology • 402 W. Washington Street, W274 • Indianapolis, IN 46204-2739
Phone 317-232-1646 • Fax 317-232-0693 • dhpa@dnr.IN.gov • www.IN.gov/dnr/historic



March 30, 2020

Karen Wood
Environmental and Cultural Resources Manager
Green 3, LLC
1104 Prospect Street
Indianapolis, Indiana 46203

State Agency: Indiana Department of Transportation (“INDOT”),
Federal Agency: Federal Highway Administration, Indiana Division (“FHWA”)

Re: DUAL REVIEW: Historic bridge alternatives analysis for the SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, Portland, Wayne Township, Jay County (Des. No. 1600828; DHPA No. 24076)

Dear Ms. Wood:

The Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (“INDNR-DHPA”), which also serves as the staff of the Indiana State Historic Preservation Officer (“Indiana SHPO”), is in receipt of Green 3, LLC’s March 3, 2020 review request submittal form and the historic bridge alternatives analysis (“HBAA”), dated February 11, 2020, for the aforementioned project in the City Portland. We received this submission on March 4, 2020.

As previously indicated, we note that the subject bridge carries SR 26 over Salamonie River (Bridge No. 026-38-03430 A: NBI 007040) and has been previously determined eligible for listing in the National Register of Historic Places within the *Indiana Historic Bridge Inventory* under Criterion C. We also note that the bridge has also been classified as a “Non-Select” bridge.

After examination of the HBAA, we note the current condition of the bridge features fracture critical members including almost all the diagonals, verticals, and lower chord members. Although rehab of the bridge occurred in 1979, we note that it included replacement of mudwalls and bridge seats, but since then, both replacements now feature minor vertical cracks. We also note that the load capacity for the bridge does not meet current standards acceptable for safety purposes.

Of the alternatives presented in the HBAA, we agree that Alternatives A, B, C, and D are feasible but not prudent based on the project need and costs. We agree that Alternative E is prudent only if a responsible party steps forward to fund the relocation, rehabilitation and maintenance of the bridge. Should a responsible party not step forward during the bridge marketing period, we are satisfied that Alternative F: Replacement – Demolition of Historic Bridge and New Bridge Construction is the only remaining alternative that is both feasible and prudent.

Unless a responsible party steps forward to take ownership of the bridge and relocate it, we understand that it is likely that the bridge will be demolished. We see in Section VI. Minimization and Mitigation, subsection D. states that “INDOT will salvage elements that may be stored and used for future repair of similar historic bridges” - can this be done for portions of the bridge left in good condition or of elements unique to this bridge type regardless if a responsible party is identified during the marketing period? Is there value to store pieces or elements in the case a future party steps forward?

Because it is apparent the bridge that carries SR 26 over the Salamonie River will be demolished, we request, pursuant to the Indiana Historic Bridges PA, that this bridge be photographically documented prior to commencement of the project by a qualified professional historian, architectural historian, or architect. Please provide overall views of the bridge and representative photographs of its deck, abutments, piers, along with any additional character defining features, including the arches. The documentation shall be

produced in keeping with the applicable standards of the “Indiana DNR – Division of Historic Preservation and Archaeology Minimum Architectural Documentation Standards” (copy enclosed), except that photographic prints, a written description of the property, a statement of significance and drawings are not required in this case. We request that our office be provided with a draft of the digital photographs on a CD or DVD, including a photo key, for our review and comment. Following our comments, one CD or DVD of the documentation shall be provided to the Indiana SHPO for transmittal to the Indiana State Archives, and that a duplicate CD or DVD to be provided to at least one local public or not-for-profit organization in Jay County that agrees to retain the CD or DVD permanently and make it available to the public. Please advise us of the name and location of the public or not-for-profit organization that is willing to accept the CD or DVD.

As INDOT’s March 3 letter indicates, additional information regarding aboveground historic resources and archaeological resources are forthcoming. Once the indicated information is received, the Indiana SHPO will resume identification and evaluation procedures for this project. Please keep in mind that additional information may be requested in the future.

For the benefit of those recipients of a copy of this letter who are not Section 106 consulting parties, please be aware that a copy of INDOT’s March 3 letter and HBAA document can be found online at [http://erms.indot.in.gov/Section 106Documents/](http://erms.indot.in.gov/Section%20106Documents/). From there, search by this project’s designation number: 1600828.

If you have questions regarding our dual review of the aforementioned project, please contact INDNR-DHPA. Questions about archaeological issues should be directed to contact Wade T. Tharp at (317) 232-1650 or wtharp1@dnr.in.gov. Questions about historic buildings or structures pertaining to this review should be directed to Danielle Kauffmann at (317) 232-0582 or dkauffmann@dnr.IN.gov.

In all future correspondence regarding the dual review of this SR 26 over Salamonie River Bridge Project in Portland, Jay County (Des. No. 1600828), please refer to DHPA No. 24076.

Very truly yours,



Beth K. McCord
Deputy State Historic Preservation Officer
Director, Division of Historic Preservation and Archaeology

BKM:DMK:dmk

EMC to federal and state agency or consultant staff members:

Michelle Allen, FHWA
Robert Dirks, P.E., FHWA
Anuradha Kumar, INDOT
Mary Kennedy, INDOT
Shaun Miller, INDOT
Susan Branigin, INDOT
Shirley Clark, INDOT
Karen Wood, Green 3, LLC
Beth K. McCord, INDNR-DHPA
Danielle Kauffmann, INDNR-DHPA
Wade Tharp, INDNR-DHPA

EMC to Indiana Historic Preservation Review Board Members:

J. Scott Keller, Review Board
Anne Shaw Kingery, Review Board
Daniel Kloc, AIA, Review Board
Jason Larrison, AIA, Review Board
Chandler Lighty, Review Board
Joshua Palmer, AIA, Review Board
April Sievert, Ph.D., Review Board
Christopher Smith, Deputy Director, INDNR, and Chairman, Review Board

EMC to potentially interested persons:

Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi Community
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma

Pokagon Band of Potawatomi Indians
The Honorable Randy Geesaman, Mayor, City of Portland,
and member, Portland Historic Preservation Commission
Ami Huffman, Portland Historic Preservation Commission
Portland Street Department
Chad Aker, Jay County Commissioner
Richard L. Huffman, Jay County Commissioner
Mike Leonhard, Jay County Commissioner
Dan Watson, Jay County Highway Department
Kenneth Wellman, Jay County Highway Department
Jane Spencer, Jay County Historian
Larry Hiatt and Kay Locker, Jay County Historical Society
Jessie Russet, Indiana Landmarks Eastern Regional Office
James L. Cooper, Ph.D., Professor Emeritus of History, DePauw University
Paul Brandenburg, Indiana Historic Spans Task Force
Nathan Holth, historicbridges.org

Karen Wood

From: Rob Weaver <rob.weaver@wpgwradio.us>
Sent: Tuesday, March 31, 2020 4:57 PM
To: Karen Wood
Subject: State Road 26 Bridge Replacement/Portland, Indiana

Follow Up Flag: Follow up
Flag Status: Flagged

Karen,

I wanted to make sure you are aware that a Pioneer cemetery is located at the northwest corner of the steel bridge which is being proposed for replacement in Portland, Indiana, over State Road 26. There are no longer markers for the various graves at this location, but it is my understanding that the graves have never been moved. The cemetery can be seen on older maps. I had been told in the past that INDOT has a record of this cemetery but just wanted to make sure everyone is aware of this situation especially since land acquisition is anticipated for this project.

Rob Weaver
Portland, Indiana
260-251-1863

Scott Henley (Jeffrey Scott)

From: Scott Henley
Sent: Thursday, November 5, 2020 2:14 PM
To: Kauffmann, Danielle M; Tharp, Wade; jrussett@indianalandmarks.org; rob.weaver@wpgwradio.us
Cc: Karen Wood; Erin Mulryan; Kennedy, Mary; Kumar, Anuradha; Miller, Shaun (INDOT; Greene, Jeremy; John Handke
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040), Portland, Jay County, Indiana
Attachments: SR26overSalamonieRiver_Des1600828_RDL_and_HPR_2020-11-5.pdf

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Indiana, Des. No. 1600828. The Section 106 Early Coordination Letter for this project was originally distributed on June 28, 2019. In addition, a letter distributed on March 3, 2020 notified consulting parties that a Historic Bridge Alternatives Analysis was available for review and comment.

As part of Section 106 of the National Historic Preservation Act, a Historic Property Short Report (HPSR) has been prepared and is ready for review and comment by consulting parties.

Please review this documentation located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with any comments that you may have. If a hard copy of the materials is needed, please respond to this email with your request as soon as you can.

Consulting parties have thirty (30) calendar days from receipt of this information to review and provide comment. Tribal consulting parties may enter the process at any time and are encouraged to respond to this notification with any comments or concerns at their earliest convenience. Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Thank you in advance for your input,

Scott

Scott Henley
Cultural Resources Associate
SJCA Inc
1104 Prospect Street
Indianapolis, IN 46203
T (317) 566-0629
SHenley@SJCAinc.com



Scott Henley (Jeffrey Scott)

From: Kennedy, Mary <MKENNEDY@indot.IN.gov>
Sent: Thursday, November 5, 2020 1:56 PM
To: Diane Hunter
Cc: Coon, Matthew; Miller, Shaun (INDOT); Allen, Michelle (FHWA); Scott Henley
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Portland, Jay County, Indiana--HPR

Des. No.: 1600828

Project Description: Historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Indiana, Des. No. 1600828. The Section 106 Early Coordination Letter for this project was originally distributed on June 28, 2019. In addition, a letter distributed on March 3, 2020 notified consulting parties that a Historic Bridge Alternatives Analysis was available for review and comment.

As part of Section 106 of the National Historic Preservation Act, a Historic Property Short Report (HPSR) has been prepared and is ready for review and comment by consulting parties.

Please review this documentation located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with any comments that you may have. If a hard copy of the materials is needed, please respond to this email with your request as soon as you can.

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Thank you in advance for your input,

Mary E. Kennedy

Historic Bridge Specialist

100 N. Senate Ave., Room N642-ES
Indianapolis, IN 46204

Email: mkennedy@indot.in.gov

Cell: 317-694-3607*

*Please note new phone number!



*For the latest updates from INDOT's Cultural Resources Office, subscribe to the Environmental Services listserv: <https://www.in.gov/indot/3217.htm>

Division of Historic Preservation & Archaeology • 402 W. Washington Street, W274 • Indianapolis, IN 46204-2739
Phone 317-232-1646 • Fax 317-232-0693 • dhpa@dnr.IN.gov • www.IN.gov/dnr/historic



November 23, 2020

Karen Wood
SJCA, Inc.
1104 Prospect Street
Indianapolis, Indiana 46203

State Agency: Indiana Department of Transportation (“INDOT”),
Federal Agency: Federal Highway Administration, Indiana Division (“FHWA”)

Re: DUAL REVIEW: Historic property report (Wood, 11/2020) for the SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, in Portland, Wayne Township, Jay County (Des. No. 1600828; DHPA 24076)

Dear Ms. Wood:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108); implementing regulations at 36 C.F.R. Part 800; the “Programmatic Agreement Among the Federal Highway Administration, the Indiana Department of Transportation, the Indiana Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Management and Preservation of Indiana’s Historic Bridges” (“Indiana Historic Bridges PA”); and the “Programmatic Agreement (PA) Among the Federal Highway Administration, the Indiana Department of Transportation, the Advisory Council on Historic Preservation and the Indiana State Historic Preservation Officer Regarding that Implementation of the Federal Aid Highway Program In the State of Indiana” (“Indiana Minor Projects PA”); and also pursuant to Indiana Code 14-21-1-18 and 312 Indiana Administrative Code (“IAC”) 20-4, the staff of the Indiana State Historic Preservation Officer (“Indiana SHPO”) has reviewed your November 5, 2020 submission with the aforementioned historic property report (“HPR”; Wood, 11/2020), received by our office November 6, 2020.

For the benefit of the Indiana Historic Preservation Review Board (“Review Board”) members and other recipients of this letter who are not Section 106 consulting parties, please be aware that documents submitted for review of this project can be found online at INSCOPE (<http://www.erms.indot.in.gov/Section106Documents/>). From there, search by this project’s designation number: 1600828.

The proposed area of potential effects (“APE”) appears to be of adequate size to encompass the geographic area in which direct and indirect effects a project of this nature could occur.

We agree with the conclusions of the HPR that the subject bridge carrying SR 26 over the Salamonie River (Bridge 026-38-03430A, NBI 007040) is the only above-ground historic property eligible for inclusion in the National Register of Historic Places (“NRHP”) located within the project’s APE. The 1941 steel Parker Through Truss has been previously determined eligible for listing in the NRHP within the *Indiana Historic Bridges Inventory*. As a “Non-Select” bridge, FHWA will follow the Project Development Process outlined in Stipulation III.B of the Historic Bridges PA to satisfy Section 106 responsibilities for this project.

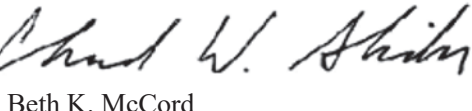
As INDOT’s November 5, 2020 letter indicates, a report on archaeological investigations within the project’s APE is forthcoming. We look forward to reviewing and commenting on that report.

If you have questions regarding our dual review of the aforementioned project, please contact DHPA. Questions about archaeological issues should be directed to Wade T. Tharp at (317) 232-1650 or wtharp1@dnr.IN.gov. Questions about historic buildings or structures pertaining to this review should be directed to Danielle Kauffmann at (317) 232-0582 or dkauffmann@dnr.IN.gov.

Anyone receiving an e-mailed copy of this letter who does *not* wish to receive future copies of our correspondence about this bridge project is asked to reply to dkauffmann@dnr.in.gov and so advise us.

In all future correspondence regarding the dual review of this bridge project on SR 26 over the Salamonie River in Portland, Jay County (Des. No. 1600828), please continue to refer to DHPA No. 24076.

Very truly yours,



Beth K. McCord
Deputy State Historic Preservation Officer

BKM:DMK:dmk

EMC to federal and state agency or consultant staff members:

Robert Dirks, PE, FHWA
Anuradha Kumar, INDOT
Mary Kennedy, INDOT
Shaun Miller, INDOT
Susan Branigin, INDOT
Karen Wood, SJCA Inc.
Danielle Kauffmann, DNR-DHPA
Wade T. Tharp, DNR-DHPA

EMC to Indiana Historic Preservation Review Board Members:

J. Scott Keller, Review Board
Anne Shaw Kingery, Review Board
Daniel Kloc, AIA, Review Board
Jason Larrison, AIA, Review Board
Chandler Lighty, Review Board
Beth K. McCord, INDNR-DHPA, Review Board
April Sievert, Ph.D., Review Board
Christopher Smith, Deputy Director, INDNR, and Chairman, Review Board

EMC to potentially interested persons:

Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi Community
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians

The Honorable John W. Boggs, Mayor, City of Portland

And member, Portland Historic Preservation Commission
Ami Huffman, Portland Historic Preservation Commission
Portland Street Department
Chad Aker, Jay County Commissioner
Richard L. Huffman, Jay County Commissioner
Mike Leonhard, Jay County Commissioner
Dan Watson, Jay County Highway Department
Donnie Corn, Jay County Highway Department
Rob Weaver, WPGW Radio
Jane Spencer, Jay County Historian
Larry Hiatt & Kay Locker, Jay County Historical Society
Jessie Russet, Indiana Landmarks, Eastern Regional Office
James L. Cooper, Ph.D., Professor Emeritus of History, DePauw University
Paul Brandenburg, Indiana Historic Spans Task Force
Nathan Holth, historicbridges.org
Tony Dillon, Historic Hoosier Bridges
Kitty Henderson, Historic Bridge Foundation

Scott Henley

From: Scott Henley
Sent: Thursday, January 7, 2021 12:30 PM
To: Tharp, Wade; Kauffmann, Danielle M
Cc: Karen Wood; Chris Jackson; Coon, Matthew; Miller, Shaun (INDOT); Kennedy, Mary
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040), Portland, Jay County, Indiana
Attachments: SR26overSalamonieRiver_Des1600828_RDL_ArchRpt_2021-1-7.pdf

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Indiana, **Des. No. 1600828**. The Section 106 Early Coordination Letter for this project was originally distributed on June 28, 2019. In addition, a letter distributed on March 3, 2020 notified consulting parties that a Historic Bridge Alternatives Analysis was available for review and comment. Also, a letter distributed on November 5, 2020 notified consulting parties that a Historic Property Report was available for review and comment.

As part of Section 106 of the National Historic Preservation Act, an Archaeological Report has been prepared and is ready for review and comment by consulting parties.

Please review this documentation located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with any comments that you may have. If a hard copy of the materials is needed, please respond to this email with your request as soon as you can.

Consulting parties have thirty (30) calendar days from receipt of this information to review and provide comment. Tribal consulting parties may enter the process at any time and are encouraged to respond to this notification with any comments or concerns at their earliest convenience. Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-416-0876 or Kari Carmany-George at FHWA at K.CarmanyGeorge@dot.gov or 317-226-5629.

Thank you in advance for your input,

Scott

Scott Henley
Cultural Resources Associate
SJCA Inc
1104 Prospect Street
Indianapolis, IN 46203
T (317) 566-0629 ext. 430
SHenley@SJCAinc.com



Scott Henley

From: Coon, Matthew <mcoon@indot.IN.gov>
Sent: Thursday, January 7, 2021 2:22 PM
To: Diane Hunter
Cc: Karen Wood; Chris Jackson; Miller, Shaun (INDOT); Kennedy, Mary; Scott Henley; Carmany-George, Karstin (FHWA)
Subject: FHWA Project: Des. No. 1600828; SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040), Portland, Jay County, Indiana

Des. No.: 1600828

Project Description: a historic bridge project

Location: SR 26 over Salamonie River, 0.75 mile east of SR 27, Portland, Jay County, Indiana

The Indiana Department of Transportation, with funding from the Federal Highway Administration, proposes to proceed with SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Indiana, **Des. No. 1600828**. The Section 106 Early Coordination Letter for this project was originally distributed on June 28, 2019. In addition, a letter distributed on March 3, 2020 notified consulting parties that a Historic Bridge Alternatives Analysis was available for review and comment. Also, a letter distributed on November 5, 2020 notified consulting parties that a Historic Property Report was available for review and comment.

As part of Section 106 of the National Historic Preservation Act, an Archaeological Report has been prepared and is ready for review and comment by consulting parties.

Please review this documentation located in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE), and respond with any comments that you may have. If a hard copy of the materials is needed, please respond to this email with your request as soon as you can.

Consulting parties have thirty (30) calendar days from receipt of this information to review and provide comment. Tribal consulting parties may enter the process at any time and are encouraged to respond to this notification with any comments or concerns at their earliest convenience. Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-416-0876 or Kari Carmany-George at FHWA at K.CarmanyGeorge@dot.gov or 317-226-5629.

Thank you in advance for your input,

Matt Coon

Archaeologist, Cultural Resources Office

Indiana Department of Transportation

100 North Senate Ave., **N758-Environmental Services**

Indianapolis, IN 46204

Phone: 317-697-9752

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INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N642
Indianapolis, Indiana 46204

PHONE: (317) 234-5168

Eric Holcomb, Governor
Joe McGuinness, Commissioner

January 7, 2021

This letter was sent to the listed parties.

RE: Dual Review Project: SR 26 over Salamonie River, Bridge 026-38-03430 A (NBI 007040) Project, Jay County, Des. No. 1600828, DHPA No. 24076

Dear Consulting Party (see attached list),

The Indiana Department of Transportation (INDOT), with funding from the Federal Highway Administration (FHWA), proposes to proceed with the SR 26 over Salamonie River, Bridge No. 026- 38-03430A (NBI 007040) Project, Des. No. 1600828.

This letter is part of the Section 106 review process for this project. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic and archaeological properties. We are requesting comments from you regarding the possible effects of this project. Please use the above Des. Number and project description in your reply and your comments will be incorporated into the formal environmental study.

A Section 106 early coordination letter was distributed on June 28, 2019. In addition, a letter distributed on March 3, 2020 notified consulting parties that a Historic Bridge Alternatives Analysis was available for review and comment. A Historic Property Report (HPR) was also distributed on November 5, 2020.

The proposed undertaking is on State Road (SR) 26 over the Salamonie River, located 0.75 mile east of SR 27, in Portland, Jay County. It is within Wayne Township, Portland USGS Quadrangle in Section 21, Township 23 North, Range 14 East.

The purpose of this bridge project is to restore the crossing of SR 26 over Salamonie River to a satisfactory condition and increase the safe carrying capacity of the bridge from the current 28 tons to 36 tons. The need for the project is that the existing bridge does not meet current INDOT design criteria for capacity or shoulder width.

Bridge No. 026-38-03430 A (NBI 007040) is a 150-foot-long one-span steel parker through truss built in 1941. The bridge has a clear roadway width of 28 ft. on a zero-degree skew, featuring a concrete cast-in-place deck with non-standard steel bridge railings upon concrete abutments on spread footings. The bridge carries SR 26, which consists of two 11 ft. travel lanes complete with two-foot-wide shoulders each and six-inch by six-inch concrete curbs.

Based on the results of the HBAA, if no party elects to take responsibility of the existing structure, the preliminary preferred alternative would be Alternative F: Replacement - Demolition of Historic Bridge and

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New Bridge Construction. This alternative proposes to remove the existing bridge and construct a new bridge on essentially the same alignment as existing. The new bridge would consist of three spans at 50', 100' and 50' to provide adequate hydraulic capacity for the crossing. The typical section would consist of two 11'-0" travel lanes with 4'-0" shoulders for a clear travel way of 30'-0". Bridge railing would be type FC concrete barriers. The out-to-out measurement of the bridge deck would be 33'-0". Two wall piers and end bents would support the structure.

This project is currently scheduled for letting in April 2022. It was anticipated that the project will require a total right-of-way acquisition of 1.75 acres; currently it is anticipated that only 0.73 acre will be required. Due to right of way research, one parcel of 0.67 acre will be re-acquisition, and the other 0.06 acre will be permanent. No relocations of residents or businesses will be required for this project.

SJCA, Inc (formerly Green 3, LLC) is under contract with INDOT to advance the environmental documentation for the referenced project.

In accordance with 36 CFR 800.2 (c), you were invited to become a consulting party as part of the Section 106 process, or you are hereby invited to become a consulting party as part of the Section 106 process. Entities that have previously accepted consulting party status--as well as additional entities that are currently being invited to become consulting parties--are identified in the attached list.

The Section 106 process involves efforts to identify historic properties potentially affected by the undertaking, to assess the undertaking's effects and to seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. For more information regarding the protection of historic resources, please see the Advisory Council on Historic Preservation's guide: *Protecting Historic Properties: A Citizen's Guide to Section 106 Review* available online at <https://www.achp.gov/sites/default/files/documents/2017-01/CitizenGuide.pdf>.

Per the terms of the "Programmatic Agreement Regarding Management and Preservation of Indiana's Historic Bridges" (Historic Bridges PA), the FHWA-Indiana Division will satisfy its Section 106 responsibilities involving "Select" and "Non-Select" bridges through the Project Development Process (PDP) of the Historic Bridges PA (Stipulation III). Because 026-38-03430A (NBI 007040) is a "Non-Select" bridge, the procedures outlined in Stipulation III.B. of the Historic Bridges PA will be followed to fulfill FHWA's Section 106 responsibilities for the project. (A copy of the Historic Bridges PA can be downloaded here: <http://www.in.gov/indot/2530.htm>).

Please note that, per the permanent rule issued by the Indiana Department of Natural Resources effective August 14, 2013 (312 IAC 20-4-11.5), INDOT is requesting that this project be subjected to "dual review"; that is, reviewed by the Division of Historic Preservation and Archaeology simultaneously under 54 U.S.C. 306108 (Section 106) and IC 14-21-1-18 (Indiana Preservation and Archaeology Law dealing with alterations of historic sites and structures requiring a Certificate of Approval). Pursuant to Section 11.5(f) of this rule, at the conclusion of the review process we anticipate that the Division Director would issue a letter of clearance exempting this project from obtaining a Certificate of Approval under IC 14-21-1-18. Enclosed with this letter is a detailed list of the consulting parties with contact information, including email addresses, for processing the dual review submission.

The Area of Potential Effects (APE) is the area in which the proposed project may cause alterations in the character or use of historic resources. The APE contains no resources listed in the National Register of Historic Places (NRHP).

A historian who meets the Secretary of the Interior's Professional Qualification Standards identified and evaluated above-ground resources within the APE for potential eligibility for the NRHP. As a result of the

historic property identification and evaluation efforts, no other above-ground resources are recommended as eligible for listing in the NRHP.

With regard to archaeological resources, an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards identified one site within the project area. As a result of these efforts, site 12-Ja-700 was recommended not eligible for listing in the NRHP and no further work is recommended.

On November 25, 2020, SHPO staff responded to the HPR concurring with the conclusions of the HPR that the bridge carrying SR 26 over the Salamonie River (Bridge 026-38-03430A, NBI 007040) is the only above-ground historic property eligible for inclusion in the National Register of Historic Places (NRHP) within the APE.

The Archaeology Report (Tribes only) is available for review in IN SCOPE at <http://erms.indot.in.gov/Section106Documents/> (the Des. No. is the most efficient search term, once in IN SCOPE). You are invited to review these documents and to respond with comments on any historic resource impacts incurred as a result of this project so that an environmental report can be completed. We also welcome your related opinions and other input to be considered in the preparation of the environmental document. If you prefer a hard-copy of this material, please respond to this email with your request within seven (7) days.

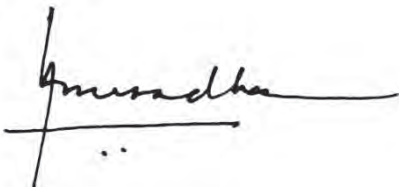
Please review the information and comment within thirty (30) calendar days of receipt. If you indicate that you do not desire to be a consulting party or if you have not previously accepted consulting party status and you do not respond to this letter, you will not be included on the list of consulting parties for this project and will not receive further information about the project unless the design changes.

For questions concerning specific project details, you may contact Karen Wood of SJCA, Inc at 317-634-4110 or karen@sjcainc.com. All future responses regarding the proposed project should be forwarded to SJCA, Inc. at the following address:

Karen Wood
Environmental and Cultural Resources Manager
SJCA, Inc.
1104 Prospect St.
Indianapolis, IN 46203
karen@sjcainc.com

Tribal contacts may contact Shaun Miller at smiller@indot.in.gov or 317-233-6795 or Michelle Allen at FHWA at michelle.allen@dot.gov or 317-226-7344.

Sincerely,

A handwritten signature in black ink, appearing to read "Anuradha", written over a horizontal line.

Anuradha V. Kumar, Manager
Cultural Resources Office
Environmental Services

Enclosures:

Archaeology Report (may be viewed via IN SCOPE)
2020-11-25 SHPO Letter to Karen Wood (SJCA, Inc.)

Distribution List:

Indiana State Historic Preservation Officer, dkauffmann@dnr.in.gov, wtharp1@dnr.in.gov
Miami Tribe of Oklahoma

Division of Historic Preservation & Archaeology • 402 W. Washington Street, W274 • Indianapolis, IN 46204-2739
Phone 317-232-1646 • Fax 317-232-0693 • dhpa@dnr.IN.gov • www.IN.gov/dnr/historic



February 8, 2021

Karen Wood
SJCA, Inc.
1104 Prospect Street
Indianapolis, Indiana 46203

State Agency: Indiana Department of Transportation ("INDOT"),
Federal Agency: Federal Highway Administration, Indiana Division ("FHWA")

Re: DUAL REVIEW: Phase Ia archaeological literature review and field reconnaissance survey report (Jackson, 01/06/2021) for the SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI 007040) Project, in Portland, Wayne Township, Jay County (Des. No. 1600828; DHPA No. 24076)

Dear Ms. Wood:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108); implementing regulations at 36 C.F.R. Part 800; the "Programmatic Agreement Among the Federal Highway Administration, the Indiana Department of Transportation, the Indiana Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Management and Preservation of Indiana's Historic Bridges" ("Indiana Historic Bridges PA"); and the "Programmatic Agreement (PA) Among the Federal Highway Administration, the Indiana Department of Transportation, the Advisory Council on Historic Preservation and the Indiana State Historic Preservation Officer Regarding that Implementation of the Federal Aid Highway Program In the State of Indiana" ("Indiana Minor Projects PA"); and also pursuant to Indiana Code 14-21-1-18 and 312 Indiana Administrative Code ("IAC") 20-4, the staff of the Indiana State Historic Preservation Officer ("Indiana SHPO") has reviewed your January 7, 2021, submission with the aforementioned archaeology report, received by our office on January 7, 2021.

For the benefit of the Indiana Historic Preservation Review Board ("Review Board") members and other recipients of this letter who are not Section 106 consulting parties, please be aware that documents submitted for review of this project can be found online at INSCOPE (<http://www.erms.indot.in.gov/Section106Documents/>). From there, search by this project's designation number: 1600828.

As previously indicated, we agree that the subject bridge carrying SR 26 over the Salamonie River (Bridge 026-38-03430A, NBI 007040) is the only above-ground historic property eligible for inclusion in the National Register of Historic Places ("NRHP") located within the project's area of potential effect. The 1941 steel Parker Through Truss has been previously determined eligible for listing in the NRHP within the *Indiana Historic Bridges Inventory*. As a "Non-Select" bridge, FHWA will follow the Project Development Process outlined in Stipulation III.B of the Historic Bridges PA to satisfy Section 106 responsibilities for this project.

Additionally, based on the submitted information and the documentation available to the staff of the Indiana SHPO, we concur with the opinion of the archaeologist, as expressed in the Phase Ia archaeological literature review and field reconnaissance survey report (Jackson, 01/06/2021), that Site 12-Ja-0700 (which was identified during these archaeological investigations) does not appear eligible for inclusion in the NRHP.

Furthermore, it is our understanding that an unnamed cemetery is extant immediately just north of the northwesternmost portions of the proposed project area, that data obtained from previous INDOT-CRO investigations determined that it is highly likely that graves are present in the cemetery, and that it was recommended that all project-related ground-disturbing activities should avoid the cemetery. It

is our understanding that cemetery development plan for this cemetery was developed in 2009, and that an updated cemetery development plan for this cemetery will be developed.

As a reminder, if any portion of the proposed project area is within 100 feet of a cemetery, then a cemetery development plan may be necessary under IC 14-21-1-26.5. The aforementioned cemetery must be avoided by all project activities, and provisions of relevant state statutes regarding cemeteries (including IC 14-21-1 and IC 23-14) must be adhered to. Please also be aware of Indiana Code 23-14-44-1 and Indiana Code 23-14-44-2, regarding restrictions on roads and utility construction in cemeteries.

We note that the archaeological site survey record form for Site 12-Ja-0700 has been submitted to the Indiana DNR-DHPA SHAARD system database. It will be reviewed.

If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and Indiana Code 14-21-1-29) requires that the discovery be reported to the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology within two (2) business days. In that event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 and Indiana Code 14-21-1-29 does not obviate the need to adhere to applicable federal statutes and regulations, including but not limited to 36 C.F.R. Part 800.

If you have questions regarding our dual review of the aforementioned project, please contact DHPA. Questions about archaeological issues should be directed to Wade T. Tharp at (317) 232-1650 or wtharp1@dnr.IN.gov. Questions about historic buildings or structures pertaining to this review should be directed to Danielle Kauffmann at (317) 232-0582 or dkauffmann@dnr.IN.gov.

Anyone receiving an e-mailed copy of this letter who does *not* wish to receive future copies of our correspondence about this bridge project is asked to reply to dkauffmann@dnr.in.gov and so advise us.

In all future correspondence regarding the dual review of this bridge project on SR 26 over the Salamonie River in Portland, Jay County (Des. No. 1600828), please continue to refer to DHPA No. 24076.

Very truly yours,



Beth K. McCord
Deputy State Historic Preservation Officer

BKM:DMK:WTT:wtt

EMC to federal and state agency or consultant staff members:

Robert Dirks, PE, FHWA
Anuradha Kumar, INDOT
Mary Kennedy, INDOT
Shaun Miller, INDOT
Susan Branigin, INDOT
Karen Wood, SJCA Inc.
Danielle Kauffmann, DNR-DHPA
Wade T. Tharp, DNR-DHPA

EMC to Indiana Historic Preservation Review Board Members:

J. Scott Keller, Review Board
Anne Shaw Kingery, Review Board
Daniel Kloc, AIA, Review Board
Jason Larrison, AIA, Review Board
Chandler Lighty, Review Board
Beth K. McCord, INDNR-DHPA, Review Board
April Sievert, Ph.D., Review Board
Christopher Smith, Deputy Director, INDNR, and Chairman, Review Board

EMC to potentially interested persons:

Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi Community
Miami Tribe of Oklahoma
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi Indians

The Honorable John W. Boggs, Mayor, City of Portland
And member, Portland Historic Preservation Commission
Ami Huffman, Portland Historic Preservation Commission
Portland Street Department
Chad Aker, Jay County Commissioner
Richard L. Huffman, Jay County Commissioner
Mike Leonhard, Jay County Commissioner
Dan Watson, Jay County Highway Department
Donnie Corn, Jay County Highway Department
Rob Weaver, WPGW Radio
Jane Spencer, Jay County Historian
Larry Hiatt & Kay Locker, Jay County Historical Society
Jessie Russet, Indiana Landmarks, Eastern Regional Office
James L. Cooper, Ph.D., Professor Emeritus of History, DePauw University
Paul Brandenburg, Indiana Historic Spans Task Force
Nathan Holth, historicbridges.org
Tony Dillon, Historic Hoosier Bridges
Kitty Henderson, Historic Bridge Foundation



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758-ES
Indianapolis, Indiana 46204

PHONE: (317) 296-0799
FAX: (317) 233-4929

Eric Holcomb, Governor
Joe McGuinness, Commissioner

February 22, 2021

Chad Slider
Assistant Director, Environmental Review
Indiana Department of Natural Resources- Division of Historic Preservation and Archaeology
Indiana Government Center South, Rm. W274
Indianapolis, IN 46204

RE: Dual Review Project: Photo documentation, SR 26 over Salamonie River, Bridge No. 026-38-03430A (NBI No. 007040), Jay County, Des. No. 1600828, DHPA No. 24076

Dear Mr. Slider,

Under Attachment B of the Indiana Historic Bridges Programmatic Agreement (HBPA), the bridge owner will complete any photo documentation in accordance with the specifications provided by the Indiana State Historic Preservation Officer (SHPO). In your office's letter of March 30, 2020 for this project, you requested photo documentation per the relevant parts of Standard 2 of the "Indiana DNR- Division of Historic Preservation and Archaeology Minimum Architectural Documentation Standards" with color digital photography, including overall views of the bridge and representative photographs of its deck, abutments, and piers, along with any additional character defining features.

The enclosed copies of photos, photo key, and maps of the bridge are being submitted to your office for review and approval. The final documentation will comply with Standard 2, regarding digital images. After incorporating any suggestions from your office, INDOT plans to forward you the final images, which we understand your office will submit to the Indiana State Archives for incorporation into their collection. We have reached out to the Jay County Historical Society, and they have agreed retain the images on disc permanently and make the disc available to the public for research. As such, INDOT will forward them the final documentation and copy your office when doing so.

Within thirty (30) days, please advise us as to the acceptability of the scope and content of the enclosed photographs. If you have any questions regarding this matter, please contact Mary Kennedy of this section at 317-694-3607 or mkennedy@indot.in.gov. It should be noted that a copy of this letter and attachments are available through IN SCOPE at <http://erms.indot.in.gov/Section106Documents/>. Thank you in advance for your cooperation.

Sincerely,

Anuradha V. Kumar, Manager
Cultural Resources Office
Environmental Services

AVK/MEK/mek
Enclosures

emc: Indiana Landmarks – Eastern Regional Office
Miami Tribe of Oklahoma
Jeremy Greene, INDOT
John Handke, USI Consultants
Karen Wood, SJCA

Appendix H

Air Quality

Indiana Department of Transportation (INDOT)
State Preservation and Local Initiated Projects FY 2020 - 2024

SPONSOR	CONTR ACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Estimated Cost left to Complete Project*	PROGRAM	PHASE	FEDERAL	MATCH	2020	2021	2022	2023	2024	
Indiana Department of Transportation	39734 / 1600624	Init.	US 27	Vertical Sight Correction	4 miles N of SR26/SR67 (Vota w St) at CR 400N	Greenfield	.22	NHPP		Bridge Construction	CN	\$357,381.60	\$89,345.40		\$446,727.00				
										Bridge ROW	RW	\$16,000.00	\$4,000.00	\$20,000.00					
										Safety Construction	CN	\$730,054.40	\$182,513.60		\$912,568.00				
Indiana Department of Transportation	39818 / 1600828	Init.	SR 26	Truss Reconstruction Or Repair	Over Salamonie River, .78 miles E of US 27	Greenfield	0	STPBG		Bridge Construction	CN	\$1,538,696.00	\$384,674.00		\$1,923,370.00				
										Bridge ROW	RW	\$40,000.00	\$10,000.00	\$50,000.00					
Indiana Department of Transportation	39818 / 1600828	M 10	SR 26	Bridge Replacement	Over Salamonie River, .78 miles E of US 27	Greenfield	0	STBG	\$2,012,120.00	Bridge ROW	RW	\$0.00	\$0.00	(\$50,000.00)	\$50,000.00				
Comments:Moving FY 2020 ROW \$50,000 to FY 2021 ROW \$50,000																			
Indiana Department of Transportation	39818 / 1600828	M 22	SR 26	Bridge Replacement	Over Salamonie River, .78 miles E of US 27	Greenfield	0	STBG	\$2,012,120.00	Bridge Construction	CN	\$0.00	\$0.00		(\$1,923,370.00)	\$1,923,370.00			
Comments:Moving CN from 2021 to 2022																			
Portland	40318 / 1600946	Init.	IR 1015	Bike/Pedestrian Facilities	City of Portland Sidewalk Project	Greenfield	.37	STPBG		Local Funds	CN	\$0.00	\$144,400.00			\$144,400.00			
										Local Transportation Alternatives	CN	\$337,600.00	\$0.00			\$337,600.00			
Portland	40319 / 1600965	Init.	IR 1023	HMA Overlay, Preventive Maintenance	Blaine Pike Project- Water St on N to CR 150 W on S	Greenfield	1.24	STPBG		Group III Program	CN	\$1,084,000.00	\$0.00			\$1,084,000.00			
										Local Funds	RW	\$0.00	\$494,600.00	\$494,600.00					
										Local Funds	CN	\$0.00	\$531,000.00			\$531,000.00			
Portland	40319 / 1600965	M 04	IR 1023	HMA Overlay, Preventive Maintenance	Blaine Pike Project- Water St on N to CR 150 W on S	Greenfield	1.24	STBG	\$2,103,160.00	Group III Program	RW	\$395,680.00	\$0.00	\$395,680.00					
										Local Funds	RW	\$0.00	-\$402,120.00	(\$402,120.00)					
Comments:NO MPO - Please reduce RW FY 20 to 92,480 (a reduction of 402,120) and add Federal FY 20 RW 395,680.																			
Portland	40319 / 1600965	M 07	IR 1023	Road Rehabilitation (3 R/4R Standards)	Blaine Pike Project- Water St on N to CR 150 W on S	Greenfield	1.24	STBG	\$247,800.00	Group III Program	RW	\$0.00	\$0.00	(\$395,680.00)	\$395,680.00				
										Local Funds	RW	\$0.00	\$0.00	(\$98,920.00)	\$98,920.00				
Comments:NO MPO - Moving RW from FY 2020 to FY 2021 - Federal 395,680 and Local 98,920 - Work type was incorrect when project began . Changing from HMA Overlay to Road Rehabilitation (3R / 4R) -change needs made due to PO request was opened under HMA Overlay and to get any further PO requests with corrected work type need to get adjusted in STIP .																			
Redkey	40320 / 1600972	Init.	ST 1035	Bike/Pedestrian Facilities	Town Park Sidewalk in Redkey	Greenfield	.265	STPBG		Group IV Program	CN	\$89,600.00	\$0.00			\$89,600.00			

Indiana Department of Transportation (INDOT)
State Preservation and Local Initiated Projects FY 2018 - 2021

SPONSOR	CONTRACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Estimated Cost left to Complete Project*	PROGRAM	PHASE	FEDERAL	MATCH	2018	2019	2020	2021
Indiana Department of Transportation	38604 / 1401834	Init.	SR 18	Small Structure Replacement	3.16 miles E of SR 1, over Haskin Run	Fort Wayne	.04	STP		Bridge ROW	RW	\$36,800.00	\$9,200.00	\$46,000.00			
Indiana Department of Transportation	38604 / 1401835	Init.	SR 18	Small Structure Replacement	3.49 miles E of SR 1, over Borne-Williams Ditch	Fort Wayne	.041	STP		Bridge Construction	CN	\$657,040.00	\$164,260.00		\$5,000.00	\$816,300.00	
										Bridge Construction	PE	\$16,000.00	\$4,000.00		\$20,000.00		
										Bridge ROW	RW	\$29,600.00	\$7,400.00	\$37,000.00			
Indiana Department of Transportation	38983 / 1592312	Init.	US 27	Bridge Deck Overlay	Over Bear Creek, 5.23 miles N of SR 67/SR26	Greenfield	0	NHPP		Bridge Construction	CN	\$449,393.60	\$112,348.40		\$561,742.00		
Indiana Department of Transportation	39734 / 1600624	Init.	US 27	Vertical Sight Correction	4 miles N of SR26/SR67 (Votaw St) at CR 400N	Greenfield	.22	NHPP		Safety Construction	CN	\$696,591.20	\$174,147.80				\$870,739.00
										Safety Consulting	PE	\$112,000.00	\$28,000.00	\$140,000.00			
										Safety ROW	RW	\$80,000.00	\$20,000.00		\$100,000.00		
Indiana Department of Transportation	39818 / 1600828	Init.	SR 26	Truss Reconstruction Or Repair	over Salamonie River, .78 miles east of US 27	Greenfield	0	STP		Bridge Consulting	PE	\$200,000.00	\$50,000.00	\$250,000.00			
										Bridge ROW	RW	\$40,000.00	\$10,000.00			\$50,000.00	
										Bridge Construction	CN	\$1,478,754.40	\$369,688.60				\$1,848,443.00
Indiana Department of Transportation	39823 / 1600935	Init.	US 27	Small Structure Replacement	3.9 mi. N. of SR 26	Greenfield	0	NHPP		Road Consulting	PE	\$60,000.00	\$15,000.00		\$75,000.00		
										Road Construction	CN	\$359,435.20	\$89,858.80				\$449,294.00
										Road ROW	RW	\$16,000.00	\$4,000.00			\$20,000.00	
Portland	40318 / 1600946	A 02	IR 1015	Bike/Pedestrian Facilities	City of Portland Sidewalk Project	Greenfield	.37	STP	\$643,700.00	Group III Program	PE	\$129,360.00	\$0.00	\$129,360.00			
										Local Funds	PE	\$0.00	\$32,340.00	\$32,340.00			
Comments:No MPO - Add PE FY 18 Federal 129,360 and Local 32,340																	
Portland	40318 / 1600946	M 08	IR 1015	Bike/Pedestrian Facilities	City of Portland Sidewalk Project	Greenfield	.37	TA	\$593,700.00	Local Funds	PE	\$0.00	\$0.00	(\$22,340.00)	\$22,340.00		
										Local Transportation Alternatives	PE	\$0.00	\$0.00	(\$89,360.00)	\$89,360.00		
Comments:NO MPO - Move PE Federal of 89,360 from FY 18 to FY 19 and Local PE FY to FY 19 22,340.																	

Appendix I

Additional Information

Land and Water Conservation Fund (LWCF) County Property List for Indiana (Last Updated July 2020)

ProjectNumber	SubProjectCode	County	Property
1800187	1800187	Jay	Sportland Park
1800243	1800243	Jay	North End Park (Milton Miller Memorial Park)

*Park names may have changed. If acquisition of publically owned land or impacts to publically owned land is anticipated, coordination with IDNR, Division of Outdoor Recreation, should occur.

Environmental Justice Analysis

Des. 1600828, SR 26 over Salamonie River, Jay Co.

Project Description

This historic bridge project is in Wayne Township, Jay County, Indiana. The project is located on SR 26 and involves INDOT Bridge No. 026-38-03430A (NBI 007040) on SR 26 over Salamonie River, 0.78 mile east of US 27, on the east side of the City of Portland. INDOT Bridge No. 026-38-03430A is a single span, steel Parker through truss structure built in 1941 and has been determined eligible for the National Register of Historic Places. The need for this project is due to the existing bridge not meeting current INDOT design criteria for capacity or shoulder width. Currently, the proposed preferred alternative is replacement, with construction of a new bridge on essentially the same alignment as existing. Approximately 0.73 acre of permanent right-of-way will be required.

Under FHWA Order 6640.23A, FHWA and the project sponsor, as a recipient of funding from FHWA, are responsible to ensure that their programs, policies, and activities do not have a disproportionately high and adverse effect on minority or low-income populations. Per the current INDOT Categorical Exclusion Manual, an Environmental Justice (EJ) Analysis is required for any project that has two or more relocations or 0.5 acre of additional permanent right-of-way. The project will require approximately 0.73 acre of permanent right-of-way and no relocations. Therefore, an EJ Analysis is required.

Potential EJ impacts are detected by locating minority and low-income populations relative to a reference population to determine if populations of EJ concern exists and whether there could be disproportionately high and adverse impacts to them. The reference population may be a county, city or town and is called the community of comparison (COC). In this project, the COC is Jay Co. The community that overlaps the project area is called the affected community (AC). In this project, the ACs are Census Tract 9629 and Census Tract 9630 in Jay Co. An AC has a population of concern for EJ if the population is more than 50% minority or low-income or if the low-income or minority population is 125% of the COC. Data from the 2018 American Community Survey (ACS) 5-year estimates was obtained from the US Census Bureau Website <https://factfinder.census.gov/> on December 13, 2020 by SJCA Inc. The data collected for minority and low-income populations within the AC are summarized in the below table:

Table: Minority and Low-Income Data (Source Data and Year)			
	COC – Jay Co.	AC-1 - Census Tract 9629, Jay County, Indiana	AC-2 - Census Tract 9630, Jay County, Indiana
Percent Minority	5%	2.9%	11.5%
125% of COC	6.2%	AC < 125% COC	AC > 125% COC
EJ Population of Concern		No	Yes
Percent Low-Income	16.9%	11.7%	13.2%
125% of COC	21.1 %	AC < 125% COC	AC < 125% COC
EJ Population of Concern		No	No

*Refer to the INDOT EJ guidance for calculating percentages

AC-1, Census Tract 9629, has a percent minority of 2.9% which is below 50% and is below the 125% COC threshold. AC-2, Census Tract 9630, has a percent minority of 11.5% which is below 50% but is above the 125% COC. Therefore, AC-2 is a minority population of EJ concern.

AC-1, Census Tract 9629, has a percent low-income of 11.7% which is below 50% and is below the 125% COC threshold. AC-2, Census Tract 9630, has a percent low-income of 13.2% which is below 50% and is below the 125% COC threshold. Therefore, both AC's do not contain low-income populations of EJ concern.

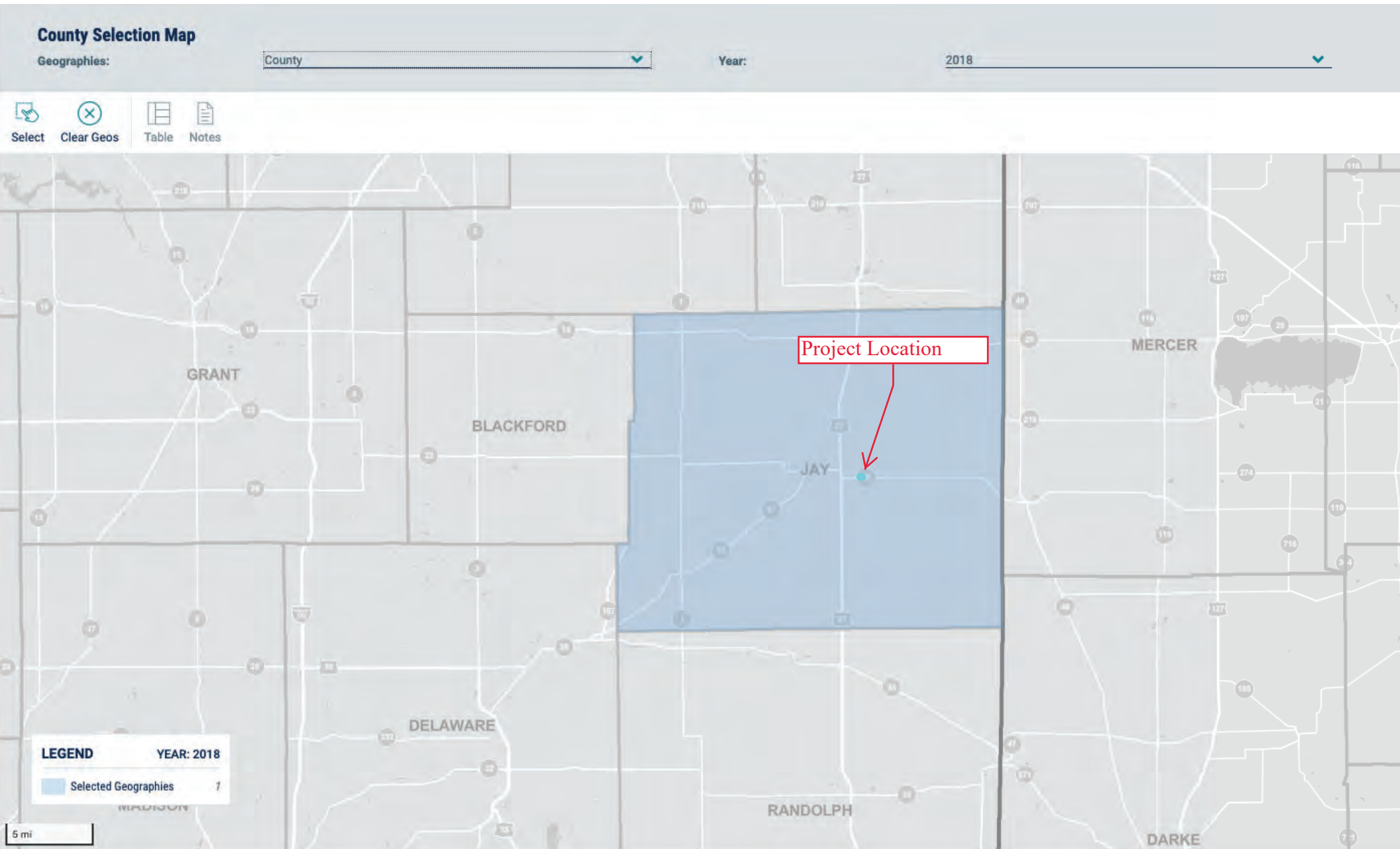
The project will provide community-wide positive impacts in the form of an improved crossing over Salamonie River for all travelers regardless of income or ethnicity. Right-of-way acquisition will occur along the roadway and riparian corridor of the river, without relocation of residences or businesses. The detour route will impact all travelers regardless of income or ethnicity and will not impact EJ populations more than any other population. The EJ analysis conducted for this project was forwarded to INDOT ESD on December 22, 2020.

Environmental Justice Analysis for SR 26 over Salamonie River (Des. 1600828)

		COC	AC1	AC2
		Jay County, Indiana	Census Tract 9629, Jay County, Indiana	Census Tract 9630, Jay County, Indiana
LOW-INCOME				
B 17001001	Population for whom poverty status is determined: Total	20,648	2,724	2,243
B 17001002	Population for whom poverty status is determined: Income in past 12 months below poverty	3,482	319	295
Percent Low-Income		16.9%	11.7%	13.2%
125 Percent of COC		21.1%	AC<125% COC	AC<125% COC
Potential Low-Income EJ Impact?			No	No
MINORITY				
B 03002001	Total population: Total	20,993	2,733	2,301
B 03002002	Total population: Not Hispanic or Latino	20,353	2,671	2,076
B 03002003	Total population: Not Hispanic or Latino; White alone	19,944	2,655	2,037
B 03002004	Total population: Not Hispanic or Latino; Black or African American alone	90	0	13
B 03002005	Total population: Not Hispanic or Latino; American Indian and Alaska Native alone	13	0	0
B 03002006	Total population: Not Hispanic or Latino; Asian alone	45	0	12
B 03002007	Total population: Not Hispanic or Latino; Native Hawaiian and Other Pacific Islander alone	1	0	0
B 03002008	Total population: Not Hispanic or Latino; Some other race alone	0	0	0
B 03002009	Total population: Not Hispanic or Latino; Two or more races	260	16	14
B 03002010	Total population: Hispanic or Latino	640	62	225
B 03002011	Total population: Hispanic or Latino; White alone	473	62	225
B 03002012	Total population: Hispanic or Latino; Black or African American alone	0	0	0
B 03002013	Total population: Hispanic or Latino; American Indian and Alaska Native alone	0	0	0
B 03002014	Total population: Hispanic or Latino; Asian alone	0	0	0
B 03002015	Total population: Hispanic or Latino; Native Hawaiian and Other Pacific Islander alone	0	0	0
B 03002016	Total population: Hispanic or Latino; Some other race alone	128	0	0
B 03002017	Total population: Hispanic or Latino; Two or more races	39	0	0
Number Non-White/Minority (P007001-P007003)		1,049	78	264
Percent Non-White/Minority		5.0%	2.9%	11.5%
125 Percent of COC		6.2%	AC<125% COC	AC>125% COC
Potential Minority EJ Impact?			No	Yes

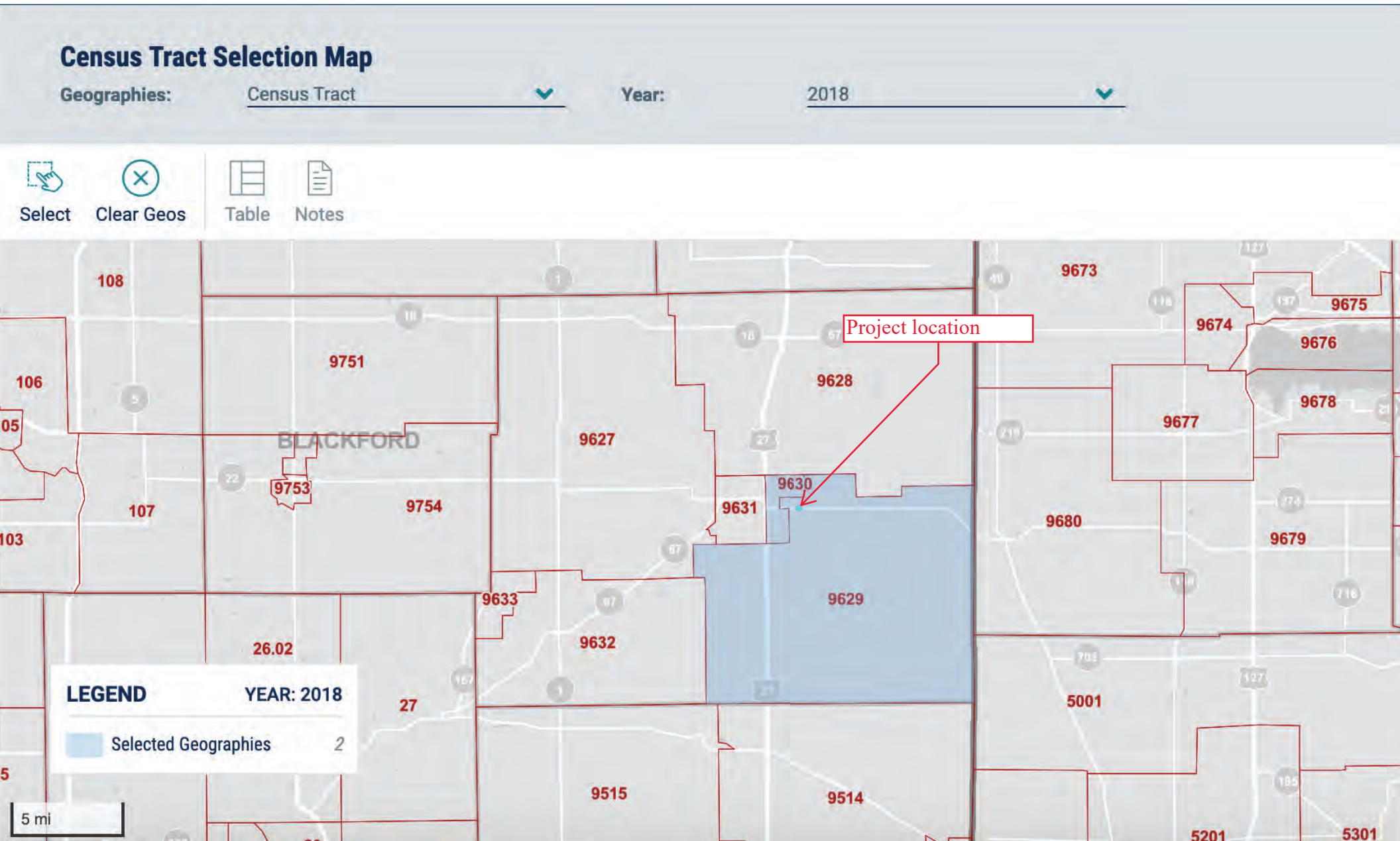
SR 26 over Salamonie River, Des. 1600828

County Map & Project Location



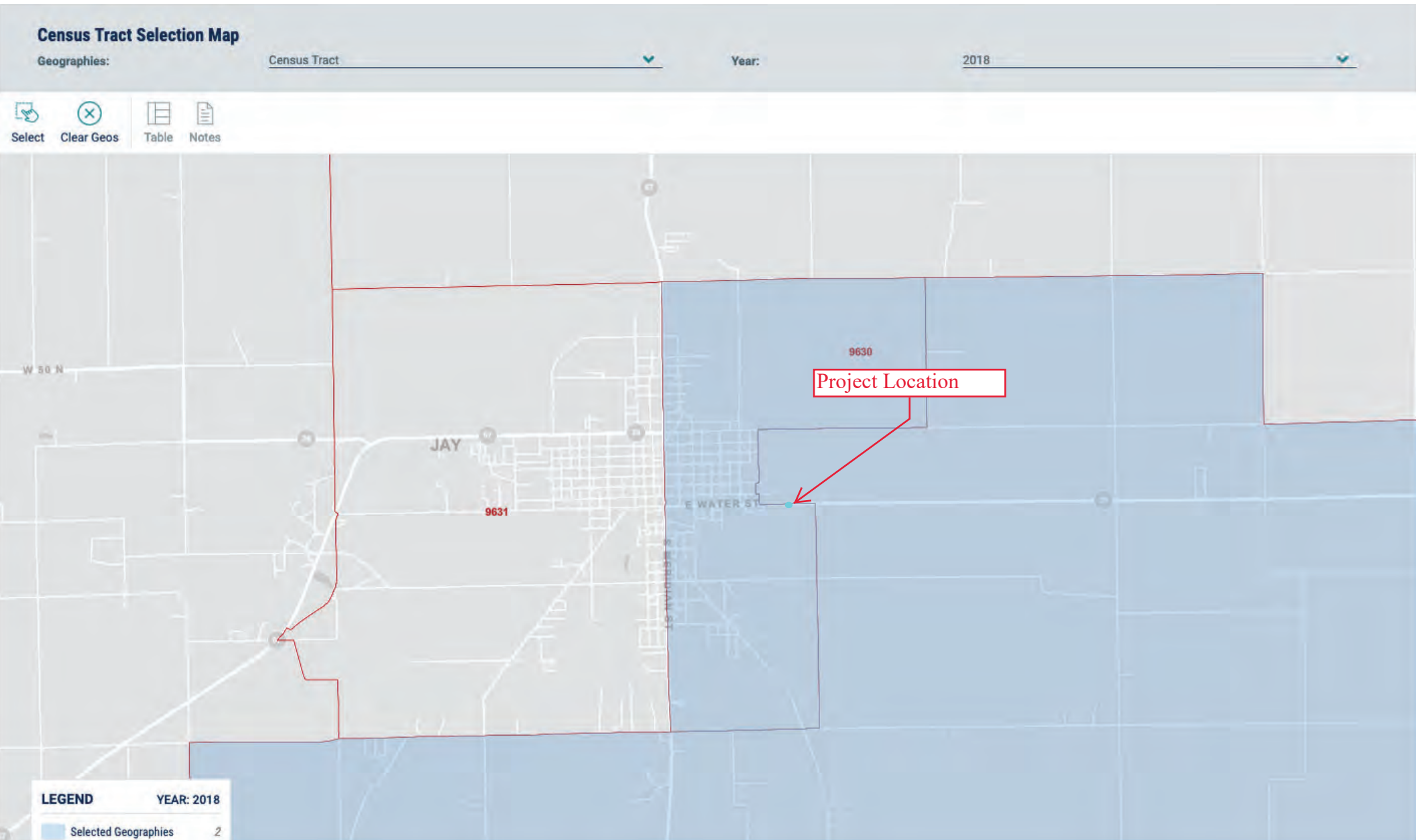
SR 26 over Salamonie River, Des. 1600828

Map of Project Location & Census Tract Boundaries



SR 26 over Salamonie River, Des. 1600828

Enlarged Map of Project Location & Census Tract Boundaries



HISPANIC OR LATINO ORIGIN BY RACE

Survey/Program: American Community Survey
TableID: B03002

Product: 2018: ACS 5-Year Estimates Detailed Tables
Universe: Total population



CUSTOMIZE TABLE

	Jay County, Indiana		Census Tract 9629, Jay County, Indiana		Census Tract 9630, Jay County, Indiana	
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
▼ Total:	20,993	*****	2,733	±232	2,301	±199
▼ Not Hispanic or Latino:	20,353	*****	2,671	±228	2,076	±187
White alone	19,944	±21	2,655	±230	2,037	±180
Black or African American alone	90	±38	0	±11	13	±28
American Indian and Alaska Native alone	13	±23	0	±11	0	±11
Asian alone	45	±45	0	±11	12	±19
Native Hawaiian and Other Pacific Islander alone	1	±2	0	±11	0	±11
Some other race alone	0	±21	0	±11	0	±11
▼ Two or more races:	260	±63	16	±19	14	±18
Two races including Some other race	0	±21	0	±11	0	±11
Two races excluding Some other race, and three or more races	260	±63	16	±19	14	±18
▼ Hispanic or Latino:	640	*****	62	±80	225	±145
White alone	473	±155	62	±80	225	±145
Black or African American alone	0	±21	0	±11	0	±11
American Indian and Alaska Native alone	0	±21	0	±11	0	±11
Asian alone	0	±21	0	±11	0	±11
Native Hawaiian and Other Pacific Islander alone	0	±21	0	±11	0	±11
Some other race alone	128	±150	0	±11	0	±11
▼ Two or more races:	39	±50	0	±11	0	±11
Two races including Some other race	10	±19	0	±11	0	±11
Two races excluding Some other race, and three or more races	29	±47	0	±11	0	±11

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

Survey/Program: American Community Survey
TableID: B17001

Product: 2018: ACS 5-Year Estimates Detailed Tables
Universe: Population for whom poverty status is determined



CUSTOMIZE TABLE

	Jay County, Indiana		Census Tract 9629, Jay County, Indiana		Census Tract 9630, Jay County, Indiana	
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
▼ Total:	20,648	±101	2,724	±232	2,243	±201
▼ Income in the past 12 months below poverty level:	3,482	±542	319	±142	295	±102
▼ Male:	1,514	±311	98	±56	114	±55
Under 5 years	205	±88	18	±21	26	±23
5 years	23	±22	0	±11	0	±11
6 to 11 years	231	±132	2	±3	0	±11
12 to 14 years	84	±48	0	±11	4	±7
15 years	18	±17	0	±11	0	±11
16 and 17 years	65	±45	9	±14	10	±14
18 to 24 years	77	±41	0	±11	20	±24
25 to 34 years	167	±89	0	±11	40	±24
35 to 44 years	115	±50	17	±18	0	±11
45 to 54 years	122	±59	22	±24	6	±9
55 to 64 years	213	±66	0	±11	0	±11
65 to 74 years	126	±59	17	±18	8	±10
75 years and over	68	±35	13	±16	0	±11
▼ Female:	1,968	±305	221	±102	181	±71
Under 5 years	210	±88	42	±39	17	±21
5 years	38	±29	0	±11	10	±12
6 to 11 years	134	±63	17	±22	8	±9
12 to 14 years	112	±66	1	±4	0	±11
15 years	53	±30	2	±4	7	±10
16 and 17 years	51	±35	20	±26	0	±11
18 to 24 years	113	±54	10	±17	35	±37
25 to 34 years	320	±95	22	±23	18	±16
35 to 44 years	185	±70	1	±4	17	±24

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

Survey/Program: American Community Survey
TableID: B17001

Product: 2018: ACS 5-Year Estimates Detailed Tables
Universe: Population for whom poverty status is determined



CUSTOMIZE TABLE

	Jay County, Indiana		Census Tract 9629, Jay County, Indiana		Census Tract 9630, Jay County, Indiana	
Label	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
45 to 54 years	295	±122	74	±60	41	±38
55 to 64 years	144	±56	14	±16	11	±12
65 to 74 years	129	±59	0	±11	9	±9
75 years and over	184	±72	18	±18	8	±8
▼ Income in the past 12 months at or above poverty level:	17,166	±546	2,405	±207	1,948	±186
▼ Male:	8,719	±360	1,259	±154	963	±123
Under 5 years	580	±106	84	±47	70	±50
5 years	71	±49	3	±5	0	±11
6 to 11 years	773	±127	119	±64	99	±50
12 to 14 years	341	±79	69	±44	45	±26
15 years	113	±47	2	±4	0	±11
16 and 17 years	253	±63	29	±22	20	±19
18 to 24 years	812	±46	104	±43	110	±78
25 to 34 years	996	±124	114	±51	154	±54
35 to 44 years	1,004	±49	177	±47	101	±37
45 to 54 years	1,257	±66	151	±57	139	±42
55 to 64 years	1,189	±101	210	±66	90	±29
65 to 74 years	814	±60	135	±46	72	±29
75 years and over	516	±41	62	±36	63	±24
▼ Female:	8,447	±293	1,146	±114	985	±124
Under 5 years	444	±94	50	±31	68	±40
5 years	62	±33	23	±27	4	±6
6 to 11 years	497	±87	76	±51	26	±21
12 to 14 years	520	±104	116	±41	41	±27
15 years	145	±56	12	±18	35	±33
16 and 17 years	256	±61	20	±23	39	±30
18 to 24 years	741	±52	66	±42	124	±56

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

Survey/Program: American Community Survey
TableID: B17001

Product: 2018: ACS 5-Year Estimates Detailed Tables
Universe: Population for whom poverty status is determined



CUSTOMIZE TABLE

		Jay County, Indiana		Census Tract 9629, Jay County, Indiana		Census Tract 9630, Jay County, Indiana	
Label		Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Under 5 years		580	±106	84	±47	70	±50
5 years		71	±49	3	±5	0	±11
6 to 11 years		773	±127	119	±64	99	±50
12 to 14 years		341	±79	69	±44	45	±26
15 years		113	±47	2	±4	0	±11
16 and 17 years		253	±63	29	±22	20	±19
18 to 24 years		812	±46	104	±43	110	±78
25 to 34 years		996	±124	114	±51	154	±54
35 to 44 years		1,004	±49	177	±47	101	±37
45 to 54 years		1,257	±66	151	±57	139	±42
55 to 64 years		1,189	±101	210	±66	90	±29
65 to 74 years		814	±60	135	±46	72	±29
75 years and over		516	±41	62	±36	63	±24
▼ Female:		8,447	±293	1,146	±114	985	±124
Under 5 years		444	±94	50	±31	68	±40
5 years		62	±33	23	±27	4	±6
6 to 11 years		497	±87	76	±51	26	±21
12 to 14 years		520	±104	116	±41	41	±27
15 years		145	±56	12	±18	35	±33
16 and 17 years		256	±61	20	±23	39	±30
18 to 24 years		741	±52	66	±42	124	±56
25 to 34 years		772	±99	103	±45	100	±37
35 to 44 years		979	±70	165	±52	144	±41
45 to 54 years		1,139	±113	148	±59	113	±43
55 to 64 years		1,234	±54	192	±55	115	±26
65 to 74 years		961	±68	137	±52	97	±32
75 years and over		697	±91	38	±27	79	±36

Subject: RE: EJ Analysis for Des 1600828 SR 26 over Salamonie River
Date: Thursday, December 31, 2020 at 12:25:33 PM Eastern Standard Time
From: Fair, Terri
To: Erin Mulryan
CC: Miller, Brandon, Bales, Ronald
Attachments: image001.png

the project may require minimal right-of-way, require no relocations, and would not disrupt community cohesion or create a physical barrier. With the information provided, INDOT-ESD would not consider the impacts associated with this project as causing a disproportionately high and adverse effect on minority and/or low incomes populations of EJ concern relative to non EJ populations in accordance with the provisions of Executive Order 12898 and FHWA Order 6640.23a. No further EJ Analysis is required.

From: Erin Mulryan <emulryan@sjcainc.com>
Sent: Monday, December 28, 2020 6:30 PM
To: Fair, Terri <TFair@indot.IN.gov>
Subject: Re: EJ Analysis for Des 1600828 SR 26 over Salamonie River

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Hi Terri, attached is the revised submission with the EJ standard language and suggestions below.

Thank You,
Erin Mulryan, MPA
Director of Environmental Services
SJCA Inc.
9102 N. Meridian St, Suite 200
Indianapolis, IN 46260
317-566-0629 (Main office); 317-634-4110 (Fountain Square office)
317-566-0633 (fax)
(Due to the coronavirus, I am working from home and can be reached on my cell, 317-525-1192)
emulryan@sjcainc.com

This email has been scanned for spam and viruses by Proofpoint Essentials. Click [here](#) to report this email as spam.

Appendix J

Historic Bridge Alternative Analysis

Note: The spans and bridge railing types of the currently proposed structure are different from the proposed structure discussed in the HBAA in Appendix J and Section 106 documentation in Appendix D because the new bridge's design was modified during project development. The spans proposed in the HBAA were 50, 100, and 50 feet and were redesigned to 70 feet each for consistency with typical structural design practice. The bridge railing was changed from FC to PF-1 and PS-1 to minimize bridge width and in accordance with customary practice for railings adjacent to sidewalks.

HISTORIC BRIDGE ALTERNATIVES ANALYSIS



BRIDGE NUMBER: 026-38-03430 B

DESIGNATION NUMBER: 1600828

ROUTE IDENTIFICATION AND FEATURE CROSSED:
SR 26 over Salamonie River

COUNTY: Jay County, Indiana

NBI NUMBER: 007040

PROJECT LOCATION: Jay County, Indiana

84°57'48", 40°25'57"

PREPARED BY:



DATE: February 11, 2020

DISCLAIMER:

This bridge was evaluated by personnel from the Indiana Department of Transportation (INDOT) Bridge Design Unit, the District Office and the designer. The attached Draft Historic Bridge Alternatives Analysis has been reviewed by the INDOT Bridge Design Unit and Cultural Resources Office for thoroughness of the rehabilitation option and compliance with INDOT design policies. Concurrence by INDOT with the proposed Scope of Work does not constitute Final Approval of the Historic Bridge Alternatives Analysis. This draft HBAA may now be distributed to the historic consulting parties for review.

[Appendix J - 1](#)

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III.	EXISTING CONDITIONS	3
IV.	PROJECT'S PURPOSE AND NEED:	6
V.	ALTERNATIVES:	6
VI.	MINIMIZATION AND MITIGATION:	14
VII.	PRELIMINARY PREFERRED ALTERNATIVE:	15

APPENDICES

APPENDIX A – MAPS

- LOCATION MAP

APPENDIX B - PHOTOGRAPHS

- PROJECT AREA PHOTOS

APPENDIX C - DRAWINGS

- AERIAL DISPLAYS OF ALTERNATIVES

APPENDIX D – COST ESTIMATES AND QUANTITIES

- ALTERNATIVE B
- ALTERNATIVE C AND D
- ALTERNATIVE E AND F

APPENDIX E – 2017 STRUCTURE INVENTORY AND APPRAISAL

- 2017 FRACTURE CRITICAL STRUCTURE INVENTORY & APPRAISAL REPORT

APPENDIX F – LOAD RATING

- TRUSS ELEVATION – SCHEMATIC
- TYPICAL SECTION – SCHEMATIC
- NORTH TRUSS WITH DAMAGE LOAD RATING
- SOUTH TRUSS WITH DAMAGE LOAD RATING
- NORTH TRUSS REPAIRED LOAD RATING
- SOUTH TRUSS REPAIRED LOAD RATING

II. EXISTING STRUCTURE DATA

This section provides a summary of the structural and geometric features of the existing SR 26 Bridge over Salamonie River.

A. Identification/History

Bridge No.:	026-38-03430 A
NBI Number:	007040
Project Location:	SR 26 over Salamonie River Jay County INDOT Greenfield District
Des. No.:	1600828
Project No.:	1600828
Year Built:	1941
Years Repaired:	1979
Most Recent Field Inspection:	August 29-30, 2017
ADT (2017):	2700 VPD
Design Year ADT (2037)	4010 VPD
Percentage of Commercial Vehicles:	16% (per 2017 SI&A)
Low Volume Road:	No
Functional Classification:	Rural Major Collector
Detour Length:	3 Miles
Load Rating:	HS Inventory – 28 tons H Inventory – 16 tons
Sufficiency Rating:	63.6
National Register of Historic Status:	Eligible
Historic Bridge Prioritization Status:	Non-Select
Historic Character Features:	This bridge is important as one of six or fewer examples of this bridge type within an INDOT district.

B. Structure Dimensions

Surface Type:	Concrete Deck
Out-to-Out Copings	29'-0"
Out-to-Out of Trusses	31'-6 1/2"
Out-to-Out of Bridge Floor	154'-8 1/2"
Clear Roadway Width:	28'-0"
Number of Lanes on Structure:	2
Vertical Clearance	14.64'
Skew:	0°
Superstructure Type:	310 B: Steel Parker Through Truss
Span Lengths:	One Span @ 150'-0"
Type of Substructure/Foundation:	Concrete Abutments on Spread Footings
Seismic Zone:	Zone 1

C. Appurtenances

Bridge Railing:	Non-standard steel bridge rail
Curbs:	6" x 6" concrete curb
Median:	None
Sidewalks:	None
Utilities:	Power poles w/aerial lines along north side of structure. Underground utilities were also noted.
Railroad:	N/A

D. Approaches

Clear Roadway:	28'-0"
Surface Type:	Chip and seal (asphalt)
Guardrail Type:	Two tube aluminum guard rail
Guardrail Transition Type:	None
Guardrail End Treatment Type:	Buried end treatment

E. Additional Information

Posted Speed Limit:	40 mph
----------------------------	--------

III. EXISTING CONDITIONS

See the ground level photographs in Appendix B and the aerial photograph in Appendix C for existing conditions in the project area. See Appendix "E" for the 2017 Fracture Critical Report and the 2017 Structural Inventory and Appraisal Report for additional condition information.

A. Bridge Deck

- 1. General:** Overall, the bridge deck is in fair condition with longitudinal and transverse cracks in the overlay and corroded metal stay in place (SIP) forms below deck. The bridge deck was replaced in 1975.
- 2. Overlay:** The bituminous wearing surface has numerous wide transverse cracks over each interior floor beam. A few longitudinal cracks were noted at the west end of the deck. A few areas have fractured along the cracks.
- 3. Surface Condition:** Although numerous cracks were noted, see Bridge Deck Overlay, item 2 above, the riding surface of the bridge is in satisfactory condition.
- 4. Underside Condition:** The concrete deck is supported with metal stay in place (SIP) forms. Several areas of corrosion were noted at the corners, especially at the northeast end of the deck and along the edges of the floor beam upper flanges near the copings.
- 5. Joints:** The SS joint at the west end has minor spalls along the steel edges. The BS-6 joint at the east end has several minor spalls along the joint edges.

6. **Site Drainage:** Bridge deck drains are open. The steel grate at one drain along the north curb line has been replaced with a steel plate.
7. **Bridge Railing:** The non-standard steel bridge rail is in fair condition with corrosion at the connections and section loss holes at the southeast and northwest corners. Minor collision rubs and scratches were observed on both railings.
8. **Curbs or Sidewalks:** The 6" curbs have numerous spalls with exposed reinforcement.
9. **Other:** N/A

B. Superstructure

1. **General:** The 7-panel Parker through truss is in fair condition.
2. **Repair/Maintenance Work:** All components of the superstructure appear to be original. No evidence of superstructure repair or significant maintenance work was observed.
3. **Specific Deficiencies – See Appendix E - Fracture Critical Report - for Itemized Details:**

Stringers - Minor to moderate section loss to flanges and webs of fascia stringers in the end panels primarily at the stringer connections to floorbeams. Defects primarily on the exterior face of the fascia beams.

Floor Beams – All floor beams have some pitting, rust, and/or deterioration at the ends at the lower lateral bracing gusset plate connections. No significant defects were noted on the interior sections of the floor beams.

Verticals – Minor corrosion, pitting at railing connections and minor pack rust was noted on most vertical members.

Diagonals – Minor corrosion, pitting and section loss were noted on several of the diagonal members. No significant defects.

Lower Chords – Numerous areas of pitting, corrosion and minor to moderate section loss were noted along the lower chords.

Upper Chords and End Post - Steel lacings bars at the northwest and southeast end posts have corrosion and major section loss or are missing over the lower +/- 8 feet. No other significant defects were noted.

Gusset Plates (Vertical) - Numerous areas of pitting, corrosion and section loss were noted in the gusset plates. A few of the gusset plates are deformed due to pack rust.

Connection Plates - Horizontal connection plates have moderate corrosion and section loss, especially at the southeast end post; pack rust causing some distortion at most locations. All lower lateral bracing gusset plates have pack rust and deformation at connections.

4. **Fracture-Critical Member or Low-Fatigue-Life Details:** Almost all of the diagonals, verticals and lower chord members are fracture critical. Members are either tension or subjected to stress-reversal. Floorbeam connections and the region within 12" of the connection are fatigue sensitive details.
5. **Damage:** No significant impact damage has been observed on this bridge. The east Portal has very minor impact damage. Minor scrapes along the existing bridge rail were observed.
6. **Bearings, Pedestals:** The concrete support block for the east end floor beam has spalled in the support area. Steel bearings are rusted, but functional.
7. **Other:** The bridge was last painted in 2000.

C. Substructure:

1. **General:** The abutments are in fair condition with horizontal and vertical cracks, delamination and spalls.
2. **Repair/Maintenance Work:** The substructure was repaired in 1979 at which time the mudwalls and bridge seats were replaced.
3. **Specific Deficiencies:**
 - The abutments have wide vertical and horizontal cracks, delaminations and spalls along the joint between the original concrete and the 1979 repair.
 - The concrete bridge seats and mudwalls have minor vertical cracks.
4. **Drainage:** Erosion and undermining were observed at the corners of the abutments. The concrete turnout/paved side ditches at the northeast and southeast corners have cracked and settled. Deep erosion gullies were noted at the river banks in front of both abutments.
5. **Scour:** The abutments sit several feet back from the channel. No evidence of scour at the abutments was observed.
6. **Other:** N/A

D. Approaches:

1. **General:** The approach roadway is in satisfactory condition with wide random cracks and minor rutting. The shoulders are narrow on all sides.
2. **Wedge:** The wedges were replaced in 2000.
3. **Approach Pavement:** The approach slabs have wide longitudinal cracks along the center construction joint.
4. **Approach Guardrail:** The approach guardrail, consisting of two tube aluminum railing, is substandard and leaning outward.

5. **Roadway Drainage and Pipe:** Adequate road drainage throughout project. No dedicated drainage structures are located within the scope of project limits.

E. **Sight Distance:** SR 26 is straight and flat on both sides of the bridge. The roadway grade is approximately 0.05%.

F. **Slopedwalls:** No slopedwalls are present.

G. **Miscellaneous:**

- Several utility poles with aerial power and telephone lines are located north of the structure.
- The channel has very heavy bank erosion, with many downed trees and exposed roots.
- No riprap or other channel protection was observed at or nearby the bridge.

IV. PROJECT'S PURPOSE AND NEED:

SR 26 over the Salamonie River, with a 28'-0" bridge roadway width, is a two lane, Parker steel truss. The grade of the roadway is approximately 0.05%, falling slightly from west to east. The bridge is currently rated for 16 tons (H Inventory Rating) and not posted for load. The reinforced concrete abutments are cracked with spalling, delamination and minor vertical cracks. Neither the existing bridge rail nor the approach rail meet Federal Highway Administration (FHWA) or INDOT current safety standards. (See IDM 49-6D(55).)

The purpose of the project is to restore the crossing of SR 26 over the Salamonie River to a satisfactory condition and increase the safe carrying capacity of the bridge from the current 28 tons to 36 tons (HS Operating Rating). Secondary purposes of the project include a bridge that can safely accommodate agricultural and emergency equipment and guardrail transitions and end treatments that meet current standards.

The primary need for the project is that the existing bridge does not meet current INDOT design criteria for capacity or shoulder width:

- **Capacity:** The bridge was designed to carry vehicles up to 20 tons but due to the structure's deterioration, current loads are limited to 16 tons. This means semi-tractor trailers, grain haulers, large farm equipment, large emergency vehicles, etc. are prohibited from using the bridge. The nature and volume of existing and proposed traffic on SR 26 necessitates that the bridge be capable of safely carrying modern highway loadings (36 ton vehicles) including commercial vehicles, grain haulers, school buses, and emergency vehicles.
- **Roadway width:** The bridge roadway carries two 11'-0" lanes with 2'-0" wide shoulders on each side of the roadway. Current INDOT design criteria requires a minimum lane width of 11'-0" with a desired width of 12'-0" and minimum shoulder width of 3'-0" with a desired width of 8'-0". Although the driving lane width meets minimum width criteria, the shoulders do not.

V. ALTERNATIVES:

Alternatives for this project were developed in accordance with INDOT's Historic Bridge PA PDP and include no build, rehabilitation, and replacement options, with and without relocation of the existing bridge. This analysis also meets the requirements of FHWA's *Programmatic Section*

4(f) *Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* (Nationwide Programmatic Section 4(f) Evaluation). Like the Historic Bridge PA PDP, this national agreement provides a framework for the evaluation of alternatives that avoid the use of the historic bridge; alternatives to be evaluated include: do nothing (i.e., no build), build on new location without using the old bridge, and rehabilitation without affecting the historic integrity of the bridge.

As stipulated in the Historic Bridge PA, an Alternatives Analysis was developed in accordance with INDOT's *Historic Bridge Alternatives Analysis Layout* (see Appendix I). Those alternatives satisfy the requirements of the Nationwide Programmatic Section 4(f) Evaluation as follows:

Nationwide Programmatic Alternative	Historic Bridge PA PDP Alternative
Do Nothing	No Build (Alternative A)
Build on new location without using the old bridge	One Way Pair (Alternative C) Bypass (Alternative D)
Rehabilitation without affecting historic integrity	Rehabilitation (Alternative B)
N/A	Replacement and Relocation of Existing (Alternative E)
N/A	Replacement and Demolition of Existing (Alternative F)

Since SR 26 over the Salamonie is a Historic Non-Select bridge, a demolition and replacement alternative was also investigated.

As described above, Section 4(f) and the INDOT Historic Bridge PA PDP require the systematic evaluation of alternatives for this project. The alternatives analysis must prove why each alternative either is or is not feasible and prudent, and it should document the justification for the decision to proceed with the preferred alternative. The regulations state that a potential avoidance alternative is not "feasible" if it cannot be built as a matter of sound engineering judgment (23 CFR 774.17), it is not possible to engineer, design and build. The term "prudent" means there are no unique problems or unusual factors involved with the use of such alternatives. Per 23 CFR 774.17, an alternative is not prudent if:

- It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
- It results in unacceptable safety or operational problems;
- After reasonable mitigation, it still causes:
 - Severe social, economic, or environmental impacts;
 - Severe disruption to established communities;
 - Severe disproportionate impacts to minority or low income populations; or
 - Severe impacts to environmental resources protected under other Federal statutes;
- It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- It causes other unique problems or unusual factors; or
- It involves multiple factors that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

The Historic Bridge PA PDP establishes the criteria for determining feasibility and prudence for projects involving historic bridges in Indiana. The Historic Bridge PA PDP is available at: <http://www.in.gov/indot/2531.htm>.

Alternative A: No Build / Do Nothing

Alternative A is an avoidance alternative that would allow the existing structure to remain in place with no improvements. INDOT would continue its current inspection program to identify structural deficiencies and would address issues as required. This alternative would not use federal funds and no action would occur. The structure would continue to deteriorate. Without repairs to the deteriorating lower chord members and gusset plates and a new paint system to seal and slow corrosion, the bridge will probably require posting for load within the next 3-5 years. Should this structure become un-useable, a three (3) mile detour consisting of moderate volume roads is available.

With the bridge in its current condition, this alternative fails to meet the stated purpose and need for a structurally safe and sufficient bridge.

Alternative B: Rehabilitation of Existing Structure for Continued Vehicular Use (two-lane option) Meeting Secretary of Interior's Standards for Rehabilitation

This alternative would consist of rehabilitating the existing structure in accordance with the Secretary of Interior's Standards for Rehabilitation or as close to the Secretary's Standards as is practicable. See Alternative B in Appendix C.

The structure would continue to accommodate two-way traffic. The existing bridge would be repaired as necessary. Approach guardrail would be replaced with railing meeting current design standards.

FIGURE B: SUMMARY OF BRIDGE'S EXISTING DESIGN ELEMENTS AND APPLICABLE DESIGN CRITERIA:

Design Element	Design Manual Section	Minimum Design Criteria	Existing Condition	Proposed Condition	Design Exception Required
Travel Lane	55-6.02	12 ft	11 ft	11 ft	Yes
Shoulder	55-4.05	6 ft	2 ft	2 ft	Yes
Structural Capacity	Fig. 55-3B	HS-20 (36 tons)	HS-15 (28 tons)	HS-20 (36 tons)	No
Clear Roadway Width	55-6.02	28 ft	28 ft	28 ft	No
Vertical Clearance	55-6.02	N/A	N/A	N/A	N/A
Bridge Railing	49-6D(40)	TL-2	Not Tested	TL-2	Yes*
Vertical Alignment Stopping Sight Distance	412.5.03	N/A	N/A	N/A	N/A
Maximum Grade	55-4.04	10%	0.05%	0.05%	No

Use 3R Criteria, Existing Bridge to Remain in Place

*The bridge railing does not meet FHWA or INDOT current design criteria, is not crash tested and would require a design exception to be left in place. Per the Indiana Design Manual, article IDM 55-6.02 railing may be left in place only if the following conditions are met:

- a. the project is a rehabilitation project on a non-NHS route;
- b. the existing bridge railing and approach guardrail are considered to be satisfactory;
- c. the accident history does not indicate that there may be a problem;
- d. the design year AADT is less than 400; and
- e. the design speed is 30 mph or lower.

Since conditions b (rail is in fair condition), d (AADT is 4010 vpd), and e (design speed is 40 mph) are not met, a design exception would not be granted. The existing bridge rail would be removed and replaced with an FC type barrier to meet current safety requirements.

Level 1 design exceptions would be required for inadequate lane width and inadequate width of shoulder. Since the bridge clear roadway and the approach roadway are both 28'-0", a design exception to leave the current travel lane and shoulder width would likely be granted.

No additional right of way will be required for this alternative. Since the work will be performed over a waterway, various permits will be required. With a drainage area of approximately 46 square miles, this project will require an IDNR Construction in a Floodway Permit. An IDEM Section 401 Water Quality Permit and a USACE Section 404 Permit will be required if any work is to be performed below the Ordinary High Water Mark. An IDEM Rule 5 Permit is not anticipated since the disturbed area will likely be less than one acre for the rehabilitation project.

A review of the fracture critical inspection and the current load rating analysis shows that the following members contribute to the insufficient load capacity:

- South Truss - Lower Chord member L0L1 – Heavy corrosion and pitting of the member within the end 1'-0" of the beam.
- South Truss – Lower Chord member L6L7 – Heavy corrosion and moderate section loss of the end of the beam below the southeast end post
- North Truss - Deteriorated gusset plate at Panel Point L3.
- Rivets in the gusset plates have lower capacity than the truss members they connect:
 - U1 and U6 (vertical members U1L1 and U6L6) in both trusses.
 - U1 and U6 (diagonals U1L2 and L5U6)

Load Rating Results - Damaged Condition

Truss	Member	H Rating (Tons)	H Operating (Tons)	HS Inventory (Tons)	HS Operating (Tons)
South Truss	L0L1	21	35	38	63
South Truss	L6L7	16	27	28	48
North Truss	Gusset Plate at L3	61	101	61	101
North Truss	L2U1	17	29	34	57
North Truss	L5U6	17	29	34	57
North and South	Rivets at U1 (U1L1)	16	29	28	46
North and South	Rivets at U6 (U6L6)	16	29	28	46

Repair or replacement of the deteriorated truss members with similar strength steel of the same size and replacing existing rivets with high strength bolts in key locations would bring the bridge to compliance with the structural capacity criteria and would meet the Secretary of Interior's Standards for Rehabilitation.

Load Rating Results – Repaired

Truss	Member	H Rating (Tons)	H Operating (Tons)	HS Inventory (Tons)	HS Operating (Tons)
Minimum Capacity Required		20		36	45
South Truss	L0L1	23	39	42	70
South Truss	L6L7	23	39	42	70
North Truss	Gusset Plate at L3	67	111	120	201
North Truss	L2U1	26	44	47	79
North Truss	L5U6	26	44	47	79
North and South	Rivets at U1 (U1L1)	27	46	43	73
North and South	Rivets at U6 (U6L6)	27	46	43	73

Substructure repairs for this alternative would include repairs to the abutments including removing loose concrete, cleaning exposed reinforcement and patching the concrete.

Additional repairs to the superstructure include a full deck replacement (existing deck is 40 years old), replacing missing lacing bars at the endposts, replacing approximately 10% of the stringers due to deterioration; replacing the existing bridge rail with FC rail, and cleaning and painting the entire structure. The current paint system is approximately 20 years old. Since the most recent painting was in 2000, the paint in place is probably not lead based paint.

SR 26 over the Salamonie River, built in 1941 by the Yost Brothers of Decatur, Indiana is an example of an Indiana State Highway Commission (ISHC) standard plan for a moderately-long span bridge. This version of the standard plans relied heavily on rolled I beams in the webbing and lower chord members. Replacement or repair of damaged members will have minimal impact on the overall appearance of the structure. Only two lower chord members are proposed for replacement. Stringers are not considered “character defining” members. No significant changes to the historic character defining members of the bridge are proposed.

The most significant component of rehabilitating the existing bridge is the cost of cleaning and painting. Cleaning the bridge, including collection and disposal of the removed paint, protection of the Salamonie River, and painting the bridge, are anticipated to cost between \$350,000 and \$400,000.

The estimated cost to rehabilitate the existing bridge is \$925,300.00. Preliminary costs for a replacement bridge along the existing alignment (shown in Alternative F) are \$1,158,300.00, making rehabilitation costs approximately 80% of replacement costs. In addition, the steel through truss requires special inspection procedures and equipment for fracture critical members and fatigue sensitive details.

Although most minimum design standards can be met and design exceptions for insufficient travel lane and shoulder width would likely be granted, this alternative is not prudent for a Non-Select structure since initial rehabilitation costs are 80% of the initial replacement costs.

Since the repairs described in Alternative B, with design exceptions, meet the Secretary of Interior's Standards, Alternative B2 (not meeting the Secretary of Interior's Standards) will not be investigated.

Alternative C: Rehabilitation of Existing Structure for Continued Vehicular Use (one-way pair option) Meeting Secretary of Interior's Standards for Rehabilitation with Construction of New One-Way Structure with Construction of New One-Way Structure

This alternative would consist of rehabilitating the existing structure in its current configuration, accommodating one-way traffic and constructing a new one-way structure. This alternative would rehabilitate the existing truss structure for continued vehicular use with one lane of traffic and would require the same repairs to the existing structure as noted in Alternative B. Since the repairs described in Alternative B meet the Secretary of Interior's Standards, Alternative C2 (not meeting the Secretary of Interior's Standards) will not be investigated.

In addition to rehabilitating the existing structure, a new three-span, one-way structure would be constructed to the north of the existing structure on a parallel alignment (See Appendix C, Alternate C & D). The new bridge would be designed for future two-way use and would meet all current INDOT design criteria. The new bridge is assumed to consist of three spans at 50', 100' and 50' to provide adequate hydraulic capacity for the crossing.

Since the work would be performed over a waterway, various permits would be required. With a drainage area of approximately 46 square miles, this project would require an IDNR Construction in a Floodway Permit. An IDEM Section 401 Water Quality Permit, a USACE Section 404 Permit if any work is to be performed below the Ordinary High Water Mark and an IDEM Rule 5 Permit would be required for this project.

The new one-way bridge would require approximately 0.636 acres of additional right-of-way. The right-of-way required is currently occupied by farm fields, forested areas and residential properties. The estimated cost of purchasing additional right-of-way is approximately \$15,000 based on property value only.

The approximate project length for this alternative is 1,200 feet long. The new bridge was assumed to be a three-span concrete structure with prestressed bulb tee beams for this analysis. The estimated construction cost a new one-way parallel structure is approximately \$1,343,000. The total estimated cost, including Right-of-Way, for Alternative C is \$1,358,000

This alternative would include the cost of rehabilitating the existing truss in addition to the cost of a new bridge (Alternative F) on a new roadway alignment and right of way acquisition. Although this alternative is feasible it is not prudent.

Alternative D: Bypass (non-vehicular use) / Build New Structure without Affecting the Historic Integrity

This alternative would consist of rehabilitating the structure for pedestrian use in accordance with the Secretary of the Interior's Standards for Rehabilitation (Secretary's Standards) or as close to the Secretary's Standards as practicable and per the Historic Bridge Programmatic Agreement Section 4(f) evaluation.

The existing bridge would be repaired as described in Alternative B. In addition to rehabilitating the existing structure, a new three-span, two-way bypass structure would be constructed to the

north of the existing structure on a parallel alignment (See Appendix C, Alternate C & D). The new bridge would be designed to meet all current INDOT design criteria. The new bridge is assumed to consist of three spans at 50', 100' and 50' to provide adequate hydraulic capacity for the crossing. The typical bridge cross section would consist of two 11' travel lanes adjacent to 4'-0" shoulders for a clear roadway width of 30'-0". Bridge railing would be type FC bridge railing. The out to out width at the bridge coping would be 33'-0".

Since the work would be performed over a waterway, various permits would be required. With a drainage area of approximately 46 square miles, this project would require an IDNR Construction in a Floodway Permit. An IDEM Section 401 Water Quality Permit, a USACE Section 404 Permit if any work is to be performed below the Ordinary High Water Mark and an IDEM Rule 5 Permit would be required for this project.

The new bypass bridge structure would require approximately 0.636 acres of additional right-of-way. The right-of-way required is currently occupied by farm fields, forested areas and residential properties. The estimated cost of purchasing additional right-of-way is approximately \$15,000 based on property value only.

The approximate project length for this alternative is 1,200 feet long. The new bridge was assumed to be a three-span concrete structure with prestressed bulb tee beams for this analysis. The estimated construction cost a new two-way bypass structure is approximately \$1,343,000. The total estimated cost, including Right-of-Way, for Alternative D is \$1,358,000. Note, the cost of rehabilitation of the existing bridge is not included in this alternative since the Historic Bridge Programmatic Agreement states that a responsible party *other than the owner* must come forward before the end of the public hearing comment period to assume liability and fund preservation and maintenance of the bridge for this alternative to be feasible.

The new construction cost is 117% of the cost for replacement (Alternative F). For a Non-Select bridge, this alternative is prudent only if a responsible party other than the owner comes forward to fund the relocation, rehabilitation and maintenance of the bridge.

Alternative E: Relocation of Historic Bridge and New Bridge Construction

Alternative E would consist of relocating and rehabilitating the structure for pedestrian use in accordance with the Secretary of the Interior's Standards for Rehabilitation (Secretary's Standards) or as close to the Secretary's Standards as practicable and per the Historic Bridge Programmatic Agreement Section 4(f).

In addition to relocating and rehabilitating the existing structure, a new three span, two-way structure would be constructed on the existing alignment. The new structure would be a two-lane structure consisting of three spans at 50', 100' and 50' to provide adequate hydraulic capacity for the crossing. The typical bridge cross section would consist of two – 11' travel lanes adjacent to 4'-0" shoulders for a clear roadway width of 30'-0". With FC railing, the out to out at the coping of bridge would be 33'-0". The approximate project length for this alternative is 1,000 feet along SR 26.

Since the work will be performed over a waterway, various permits will be required for the project. These include a Certificate of Approval for Construction in a Floodway (drainage area of 46 square miles), a Section 401 Indiana Department of Environmental Management permit and a Section 404 Army Corps of Engineers permit. An IDEM Rule 5 Permit is not anticipated since the disturbed area would likely be less than one acre for the replacement project.

The estimated construction cost of the replacement structure is approximately \$1,158,300. No additional right of way would be required for this alternative. The existing structure, in accordance with INDOT's Cultural Resource Manual, Chapter 2-1.0, would be advertised for a minimum period of six months to allow any interested individual(s) or group(s) the opportunity to assume responsibility for the bridge and fund the relocation, rehabilitation and maintenance of bridge.

This alternative is feasible, meeting all current INDOT design standards. For a Non-Select bridge, this alternative is prudent only if a responsibility party *other than the owner* comes forward to fund the relocation, rehabilitation and maintenance of bridge.

Preferred Alternative F: Replacement – Demolition of Historic Bridge and New Bridge Construction

Alternative F would consist of demolishing the existing bridge and constructing a new structure meeting all current INDOT design criteria along the existing alignment. A replacement structure would consist of three spans at 50', 100' and 50' to provide adequate hydraulic capacity for the crossing. The typical section would consist of two 11'-0" travel lanes with 4'-0" shoulders for a clear travel way of 30'-0". Bridge railing would be type FC concrete barriers. The out-to-out measurement of the bridge deck would be 33'-0". Two wall piers and end bents would support the structure. The approximate project length for this alternative is 1,000 feet along SR 26. The estimated construction cost of the replacement structure is approximately \$1,158,300. No additional right of way would be required for this alternative.

Since the work would be performed over a waterway, various permits would be required for the project. These include a Certificate of Approval for Construction in a Floodway (drainage area of 46 square miles), a Section 401 Indiana Department of Environmental Management permit and a Section 404 Army Corps of Engineers permit. An IDEM Rule 5 Permit is not anticipated since the disturbed area would likely be less than one acre for the replacement project.

The existing structure, in accordance with INDOT's Cultural Resource Manual, Chapter 2-1.0, would be advertised for a minimum period of six months to allow any interested individual(s) or group(s) the opportunity to purchase and assume responsibility for the bridge.

This alternative is feasible, meeting all current INDOT design standards. If no responsible party other than the owner comes forward to fund relocation, preservation, and maintenance of the bridge, this alternative is prudent.

SUMMARY OF ALTERNATIVE COSTS:

Alt No.	Structure Rehabilitation Cost	New Structure Cost	R/W Req'd (Cost)	Total Cost
A-No Build	\$0.00	\$0.00	\$0.00	\$0.00
B-Rehabilitation for Continued Vehicular Use (two-way or one-way option)	\$962,300	\$0.00	\$0.00	\$962,300
C-Rehabilitation for Continued Vehicular Use (one-way pair option)	\$962,300	\$1,343,000	0.636 ac. (\$15,000)	\$2,305,300
D - Bypass (non-vehicular use)	N/A	\$1,343,000	0.636 ac. (\$15,000)	\$1,358,000
E-Relocate	N/A	\$1,158,300	\$0.00	\$1,158,300
F-Replace	N/A	\$1,158,300	\$0.00	\$1,158,300

Note: Estimated costs do not include cost of utility relocation.

VI. MINIMIZATION AND MITIGATION

- A. The following measures have been considered in order to minimize harm to the existing, historic bridge for any alternative involving rehabilitation:
- For those alternatives meeting Secretary of Interior's Standards for Rehabilitation, alterations to the superstructure would not significantly change the geometry or appearance of the bridge.
 - Repairs to the structure would be made "in-kind", using similar materials. Since the bridge was originally constructed in 1941, similar steel shapes and sizes are readily available.
 - Rivets that need to be replaced to strengthen members would be replaced with round headed bolts rather than polygonal-headed bolts.
 - A design exception would be pursued to maintain the existing bridge railing and shoulder width.
- B. The bridge will be marketed for reuse/rehabilitation beginning at a date yet to be determined. Advertisements will be placed in a statewide newspaper, a local newspaper, and on the INDOT website. Signs will posted at the bridge site at a date yet to be determined. Marketing will take place for a minimum of six months and will not conclude until the comment period for the public hearing is over.
- C. The Indiana SHPO will be consulted to determine if photo documentation of the bridge is needed.
- D. INDOT will salvage elements that may be stored and used for future repair of similar historic bridges if an interested and responsible party is identified during the bridge marketing phase of project development.

VII. PRELIMINARY PREFERRED ALTERNATIVE

Alternative F is the preferred alternative: Replacement – Demolition of Historic Bridge and New Bridge Construction

Alt No.	Meets Purpose and Need?	Construction Cost	ROW Amount & Cost	Other Factors	Feasible and Prudent?
A-No Build	No	NA	NA	The existing bridge does not meet existing structural capacity requirements.	The alternative is not prudent because it does not meet the project purpose and need. The bridge does not meet acceptable load capacity, especially considering the volume of truck and farm equipment traffic.
B1-Rehabilitation for Continued Vehicular Use (two-way option)	Yes	\$962,300	0	Replacement or repair of damaged members would have minimal impact on the overall appearance of the structure. No significant changes to the historic character defining members of the bridge are proposed. A level 1 design exception for bridge rail would likely be granted.	The alternative is feasible. This alternative is not prudent because rehabilitation costs are 80% of the replacement costs.
C-Rehabilitation for Continued Vehicular Use (one-way pair option)	Yes	\$2,305,300	0.636 ac. (\$15,000)	Additional Right of Way acquisition would be required for the one-way bypass bridge.	This alternative is feasible but not prudent, due to combined costs of rehabilitation, new construction and additional right-of-way costs.
D - Bypass (non-vehicular use of existing bridge)	Yes	\$1,343,000	0.636 ac. (\$15,000)	Additional Right of Way acquisition would be required for the two-way bypass bridge. The bridge must be marketed per the Historic Bridge PA and a responsible party other than owner must come forward to fund the rehabilitation and maintenance of bridge.	This alternative is feasible but not prudent, due to cost of new construction and additional right-of-way costs. In addition, a responsibility party other than the owner must forward to fund the relocation, rehabilitation and maintenance of bridge.
Alternative E: Relocation of Historic Bridge and New Bridge Construction	Yes	\$1,158,300	0	The bridge must be marketed per the Historic Bridge PA. A responsible party other than owner must come forward to fund the relocation, rehabilitation and maintenance of bridge.	This alternative is prudent only if a responsibility party other than the owner comes forward to fund the relocation, rehabilitation and maintenance of bridge.
Alternative F: Replacement – Demolition of Historic Bridge and New Bridge Construction	Yes	\$1,158,300	0	The bridge must be marketed per the Historic Bridge PA.	This alternative is feasible, meeting all current INDOT design standards. If no responsible party other than the owner has come forward to fund relocation, preservation, maintenance of the bridge, the alternative is prudent.

Appendix A

Maps

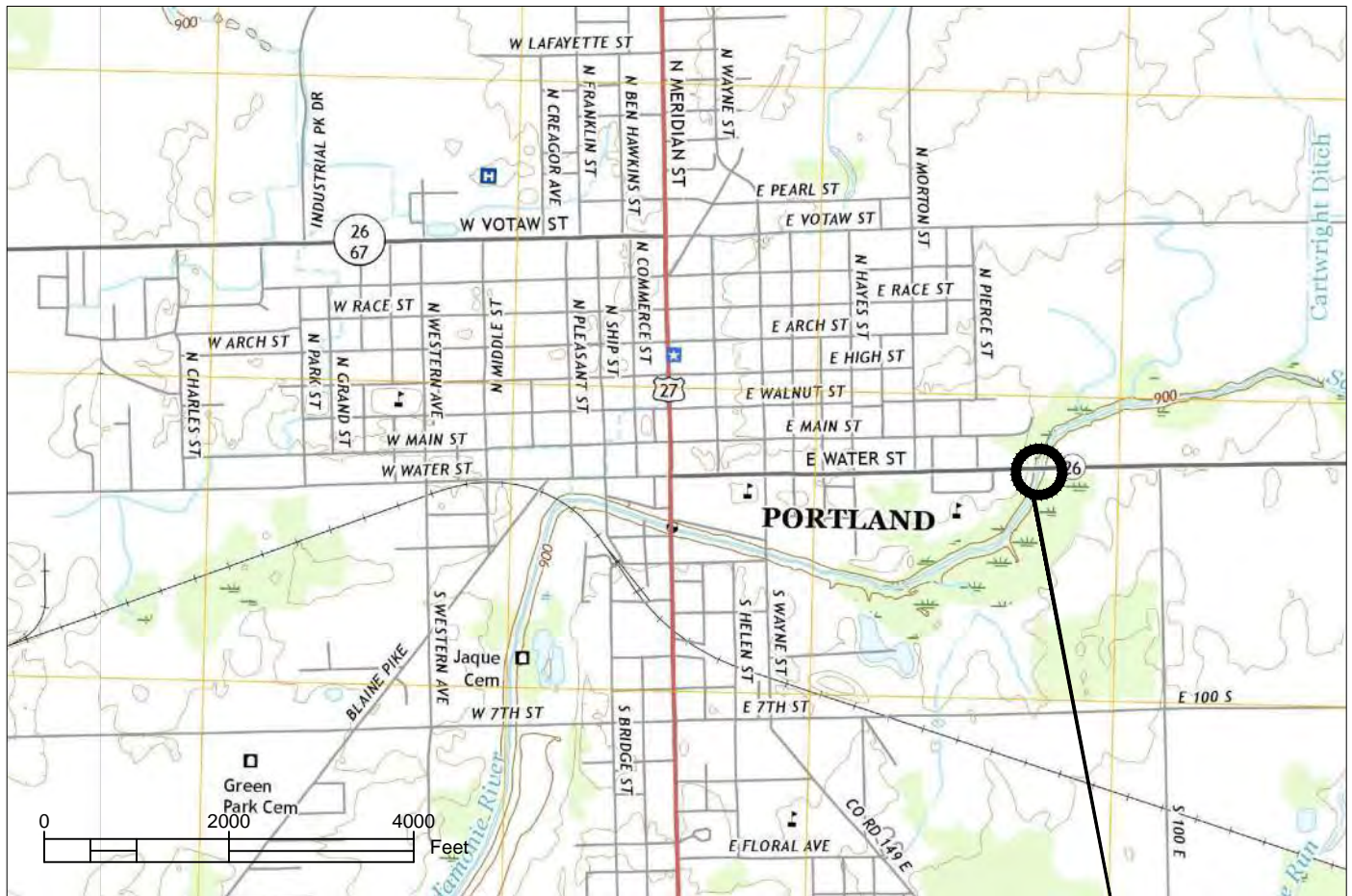


8415 E. 56th Street
Indianapolis, Indiana 46216
Phone: (317) 544-4996
Fax: (317) 544-4997

INDOT GREENFIELD DISTRICT
BRIDGE: 026-38-03430 A

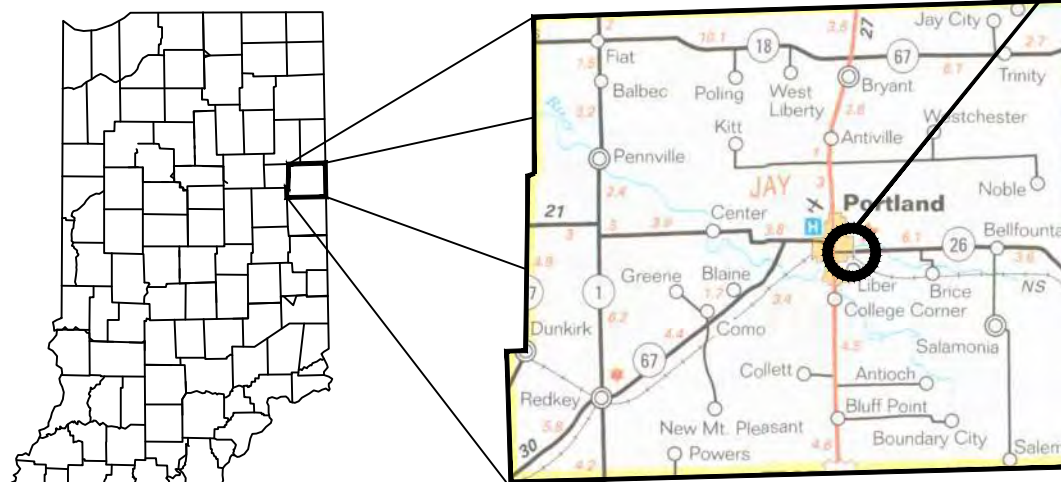
LOCATION MAP
SR 26 over Salamonie River

HORIZONTAL SCALE	BRIDGE FILE
1" = 2000'	026-38-03430 A
VERTICAL SCALE	DESIGNATION
n/a	1600828
SURVEY BOOK	SHEETS
	1 of 1
CONTRACT	PROJECT
	2017-102



Section 21, Township 23 N, Range 14 E
Wayne Township, Jay County, Indiana

PROJECT SITE



JAY COUNTY



Appendix B

Photographs

026-38-03430 A
SR 26 over Salamonie River
Alternative Analysis Report – Photo Pages



Photo 1: West Approach Looking East



Photo 2: East Approach Looking West

026-38-03430 A
SR 26 over Salamonie River
Alternative Analysis Report – Photo Pages



Photo 3: South Face Looking North



Photo 4: North Face Looking South

026-38-03430 A
SR 26 over Salamonie River
Alternative Analysis Report – Photo Pages



Photo 5: Looking West at Abutment 1



Photo 6: Looking East at Abutment 2

026-38-03430 A
SR 26 over Salamonie River
Alternative Analysis Report – Photo Pages



Photo 7: Floor System



Photo 8: Aerial View of Truss

See Appendix C – 2017 Structure Inventory and Appraisal Fracture Critical Report for additional condition photos.

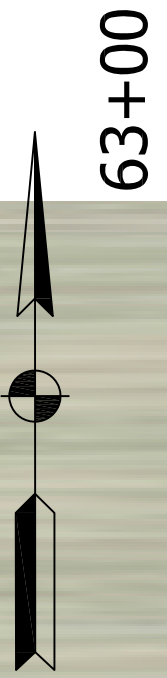
Appendix C

Drawings



DISPLAY NO. 1
ALTERNATE "A" - DO NOTHING
ALTERNATE "B" - REHAB EXISTING STRUCTURE

	NOT FOR CONSTRUCTION			INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		BRIDGE FILE	
						1" = 40'-0"		026-38-03430 A	
						VERTICAL SCALE		DESIGNATION	
						NONE		###	
		DESIGNED: _____ BDC		DRAWN: _____ BDC					
		CHECKED: _____ BLM		CHECKED: _____ BLM					
				ORIGINAL ALIGNMENT LINE "A"		SURVEY BOOK		SHEETS	
						###		### of ###	
						CONTRACT		PROJECT	
						###		###	



DISPLAY NO. 2

ALTERNATE "C" - ONE-WAY PAIRS (SIMILAR)

ALTERNATE "D" - TWO-WAY BYPASS (SHOWN)

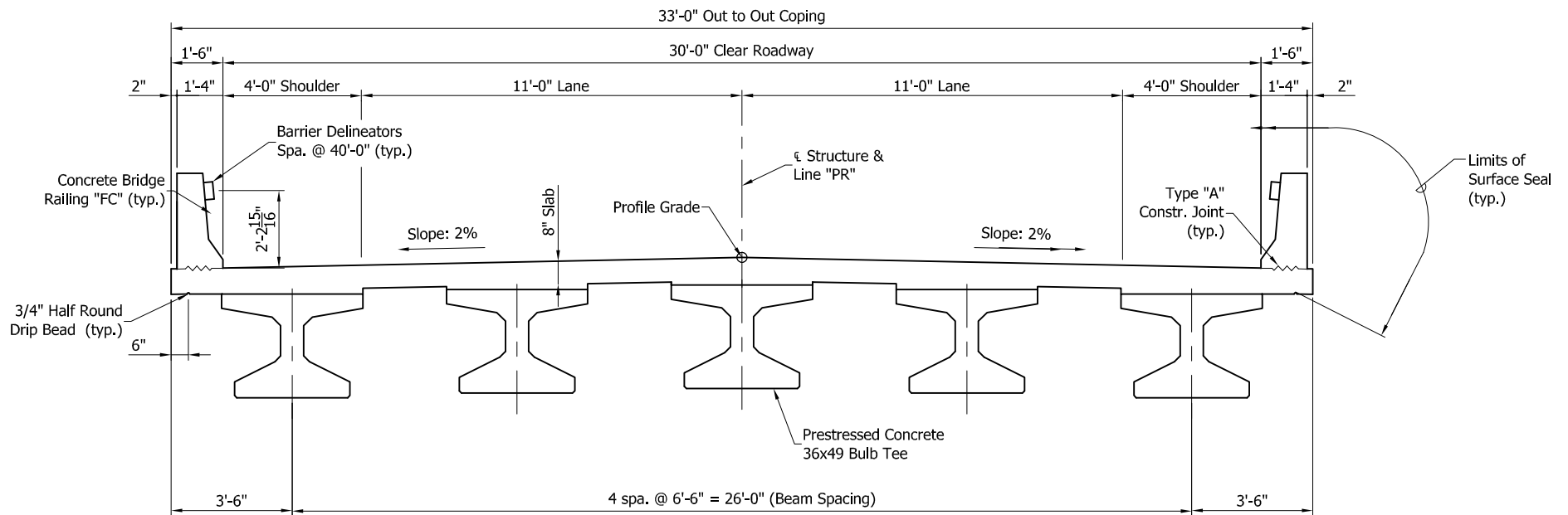
	NOT FOR CONSTRUCTION			INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		BRIDGE FILE	
						1" = 40'			
						VERTICAL SCALE		DESIGNATION	
						N/A			
				PLAN SR 26		SURVEY BOOK		SHEETS	
								---- of	
						CONTRACT		PROJECT	



DISPLAY NO. 3

ALTERNATE "E & F" - STRUCTURE REPLACEMENT WITH NO
CHANGE TO ALIGNMENT

	NOT FOR CONSTRUCTION			INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		BRIDGE FILE			
						1" = 40'-0"		026-38-03430 A			
						VERTICAL SCALE		DESIGNATION			
						NONE		###			
		DESIGNED: _____ BDC		DRAWN: _____ BDC		ORIGINAL ALIGNMENT LINE "A"		SURVEY BOOK		SHEETS	
								####		#### of ####	
		CHECKED: _____ BLM		CHECKED: _____ BLM				CONTRACT		PROJECT	
						####		####			



ALTERNATIVE "D", "E" AND "F"
TYPICAL SECTION
 Scale: 3/8"=1'-0"

Appendix D

Cost Estimates and Quantities

PRICING REPORT

Date: 11/18/2019
Time: 03:09:19

Project: **Alternate B**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102**
Bid Date: **/ /** State: **IN**
Route:

Project Settings

Primary County:	JAY	Urban/Rural:	
Addl Counties:		Work Type:	
District:	Fort Wayne	Function Class:	
Longitude:	89° 00' 00"	Season:	
Latitude:	35° 00' 00"	Estimator:	mfitzpatrick
Log Mile:	Beg:	Constr Eng:	0.00 %
	End:	Priced Date:	/ /
Station:	Beg:	Create Date:	03/26/2018
	End:	Fed Projec No:	2017-102
Project Length:	0.0000 miles		

Project Categories

100 Category 100	465,000.00	48.3%
200 Category 200	103,458.00	10.8%
300 Category 300	3,120.00	0.3%
400 Category 400	4,306.40	0.4%
600 Category 600	45,061.16	4.7%
700 Category 700	303,701.06	31.6%
0 Category 0	37,640.00	3.9%
TOTALS:	962,286.62	100.0%

Major Categories

MISC.	618,519.16	64.3%
GRADE/DRAIN	0.00	0.0%
BRIDGE	336,341.06	35.0%
PAVEMENT/BASE	7,426.40	0.8%
TOTALS:	962,286.62	100.0%

PRICING REPORTDate: 11/18/2019
Time: 03:09:21Project: **Alternate B**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**Project ID: **2017-102**
Bid Date: / / State: **IN**
Route:

SortCd	Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
1	100	105-06807	additional {clean and paint}	1.000	L.S.	400,000.00	400,000.00	
2	100	105-06845	construction engineering	1.000	L.S.	19,000.00	19,000.00	
3	100	110-07025	mobilization and demobilization	1.000	EACH	46,000.00	46,000.00	
CATEGORY 100 SUBTOTALS							465,000.00	48.3%
4	200	202-02240	pavement removal	133.000	SYS	26.00	3,458.00	
5	200	202-51328	present structure, remove portions	1.000	L.S.	100,000.00	100,000.00	
CATEGORY 200 SUBTOTALS							103,458.00	10.8%
6	300	306-08159	milling, asphalt {hma}	480.000	SYS	6.50	3,120.00	
CATEGORY 300 SUBTOTALS							3,120.00	0.3%
7	400	401-07321	qc/qa-hma, 2, 64, surface, 9.5 mm	40.000	TON	107.66	4,306.40	
CATEGORY 400 SUBTOTALS							4,306.40	0.4%
8	600	601-01522	guardrail, transition, type tgb	4.000	EACH	2,343.00	9,372.00	
9	600	601-01700	guardrail, terminal system, w-beam curved, 1	1.000	EACH	2,201.50	2,201.50	
10	600	601-12281	guardrail mgs w-beam, 6 ft 3 in spacing	450.000	L.F.	20.27	9,121.50	
11	600	601-94689	guardrail, end treatment, os	3.000	EACH	2,779.00	8,337.00	
12	600	609-06259	reinforced concrete bridge approach, 12 in.	133.000	SYS	120.52	16,029.16	
CATEGORY 600 SUBTOTALS							45,061.16	4.7%
13	700	703-06029	reinforcing bars, epoxy coated	41,937.000	LBS	1.00	41,937.00	
14	700	704-51002	concrete, c, superstructure	110.800	C.Y.	920.70	102,013.56	
15	700	706-11620	concrete bridge railing transition, t/c	4.000	EACH	1,861.50	7,446.00	
CATEGORY 700 SUBTOTALS							303,701.06	31.6%
16	0	706-51020	railing, concrete c	29.600	C.Y.	900.00	26,640.00	

PRICING REPORT

Date: 11/18/2019
Time: 03:09:21

Project: **Alternate B**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102**
Bid Date: **/ /** State: **IN**
Route:

SortCd	Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
17	0	709-51821	surface seal	1.000	L.S.	6,000.00	6,000.00	
CATEGORY 0 SUBTOTALS							37,640.00	3.9%
18	700	710-09158	patching concrete structures	250.000	S.F.	137.25	34,312.50	
19	700	711-51038	structural steel	1.000	L.S.	65,000.00	65,000.00	
20	700	711-93035	jacking and supporting, structural steel {Isum}	1.000	L.S.	40,000.00	40,000.00	
21	700	724-51925	structural expansion joint, ss	58.000	L.F.	224.00	12,992.00	
CATEGORY 700 SUBTOTALS							303,701.06	31.6%
22	0	801-06775	maintaining traffic	1.000	L.S.	5,000.00	5,000.00	
CATEGORY 0 SUBTOTALS							37,640.00	3.9%
TOTALS							962,286.62	100.0%

Pavement Removal

$$29' \times 20'-6" \times \frac{1}{9} \times 2 = \boxed{133 \text{ Sys}}$$

RC. Bridge Approach

$$29' \times 20'-6" \times \frac{1}{9} \times 2 = \boxed{133 \text{ Sys}}$$

Epoxy Coated Reinforcing Steel

Class C $110.8 \text{ Sys} \times 225 \#/\text{Sys} = 24,930 \text{ Lbs}$

Appr. Slabs $133 \text{ Sys} \times 50 \#/\text{Sys} = 6650 \text{ Lbs}$

Barrier $310 \text{ Lft} \times 26.3 \text{ Lbs/Lft} = 8153 \text{ Lbs.}$

Transitions $551 \text{ Lbs} \times 4 = 2204 \text{ Lbs}$

HMA Transition milling

total = $\boxed{41,937 \text{ Lbs}}$

$$90' \times 24' \times \frac{1}{9} \times 2 = \boxed{480 \text{ Sys}}$$

QC-QA-HMA, 7, 64, surface, 9.5mm

$$90' \times 24' \times \frac{1}{9} \times 165 \#/\text{Sys} \times \frac{1}{2000} \times 2 = \boxed{40 \text{ tons}}$$

Expansion Joint Class "SS"

$$29 \text{ Lft} \times 2 = \boxed{58 \text{ Lft}}$$

Concrete Class C in Rolling

$$310 \text{ Lft} \times 2.58 \text{ Cft/Lft} \times \frac{1}{27} = \boxed{29.6 \text{ Sys}}$$



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Initials DWB Date 3-26-18 Sheet No. of
Chkd by LM Date 3-26-18 Job No. 2017-102
Subject Alt. B

Guardrail, MGS, W-Beam, 6'3" Post Spa.

NW 100 Lft

NE 125 Lft

SW 100 Lft

SE 125 Lft

total 450 Lft

Guardrail, MGS, Curved W-Beam, Terminal System type 1

1 Each

Guardrail End treatment, Type "OS"

3 Each

Concrete Bridge Railing Transition, TFC

4 Each

Guardrail transition, MGS, TGB

4 Each

Concrete Class "C" in Superstructure

$154'9" \times 29' \times 8" \times 1/27 =$ 110.8 Cys

Remove Structure, Portions ^{USE} \$100,000

1 LSCM

Patching Concrete Structures

250 sft

Appendix J - 35

Surface Seal (154'9" x 31') + (29' x 20.5' x 2) = 5987 sft

Structural Steel

Lower Chord

L0-L2, L5-L6 W 10 x 54

40' x 2 x 54 plf =

4,320 lb

Stringers - Assume Replace 15

23' x 50 plf x 15 =

17,250 lb

Gusset Pl at L3

3' x 3' x $\frac{3}{8}$ " x 490 pcf

140 lb

Bridge Rail

800 #/Panel x 7 panels x 2 trusses x 0.16

1680 lb

Misc $\approx 10\%$

23,390 lb

2339

25,729 lb

2,500

\$64,323

Use \$65,000

Structural Steel

1 LSUM

Jack & Support (

1 LSUM

Clean & Paint (Use \$400,000)

1 LSUM

(includes collection and disposal of waste)

PRICING REPORT

Date: 08/21/2018
Time: 10:17:01

Project: **Alternate C&D**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102 ALT C&D**
Bid Date: **/ /** State: **IN**
Route: **SR 26**

Project Settings

Primary County: JAY	Urban/Rural:
Addl Counties:	Work Type:
District: Fort Wayne	Function Class:
Longitude: 89° 00' 00"	Season:
Latitude: 35° 00' 00"	Estimator: Martin K. Teufel, EI
Log Mile: Beg:	Constr Eng: 0.00 %
End:	Priced Date: / /
Station: Beg:	Create Date: 03/26/2018
End:	Fed Projec No: 2017-102
Project Length: 0.0000 miles	

Project Categories

100 General Provisions	78,500.00	5.8%
200 Earthwork	219,190.00	16.3%
300 Aggregate Pavement and Bases	33,440.00	2.5%
400 Asphalt Pavement	64,070.00	4.8%
600 Incidental Construction	78,912.00	5.9%
700 Structures	868,770.50	64.7%
TOTALS:	1,342,882.50	100.0%

Major Categories

MISC.	292,412.00	21.8%
GRADE/DRAIN	84,190.00	6.3%
BRIDGE	868,770.50	64.7%
PAVEMENT/BASE	97,510.00	7.3%
TOTALS:	1,342,882.50	100.0%

STIP Information

Construction Cost	1,342,882.50	100.0%
PE	0.00	0.0%
CE	0.00	0.0%
R/W	0.00	0.0%
R/W Incidentals	0.00	0.0%
Utilities	0.00	0.0%
Incentive	0.00	0.0%
TOTAL:	1,342,882.50	100.0%

PRICING REPORT

Date: 08/21/2018
Time: 10:17:03

Project: **Alternate C&D**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102 ALT C&D**
Bid Date: **/ /** State: **IN**
Route: **SR 26**

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
100	105-06845	construction engineering	1.000	L.S.	22,500.00	22,500.00	
100	110-01001	mobilization and demobilization	1.000	L.S.	56,000.00	56,000.00	
GENERAL PROVISIONS SUBTOTALS						78,500.00	5.8%
200	201-52370	clearing right of way	1.000	L.S.	10,000.00	10,000.00	
200	202-51330	present structure, remove	1.000	L.S.	125,000.00	125,000.00	
200	203-02000	excavation, common	1,010.000	C.Y.	25.00	25,250.00	
200	203-02070	borrow	2,947.000	C.Y.	20.00	58,940.00	
EARTHWORK SUBTOTALS						219,190.00	16.3%
300	301-12234	compacted aggregate no 53	608.000	C.Y.	55.00	33,440.00	
AGGREGATE PAVEMENT AND BASES SUBTOTALS						33,440.00	2.5%
400	401-07321	qc/qa-hma, 2, 64, surface, 9.5 mm	220.000	TON	110.00	24,200.00	
400	401-07390	qc/qa-hma, 2, 64, intermediate, 19.0 mm	443.000	TON	90.00	39,870.00	
ASPHALT PAVEMENT SUBTOTALS						64,070.00	4.8%
600	601-01522	guardrail, transition, type tgb	4.000	EACH	2,400.00	9,600.00	
600	601-01700	guardrail, terminal system, w-beam curved, 1	1.000	EACH	2,200.00	2,200.00	
600	601-12281	guardrail mgs w-beam, 6 ft 3 in spacing	450.000	L.F.	20.00	9,000.00	
600	601-94689	guardrail, end treatment, os	3.000	EACH	2,800.00	8,400.00	
600	609-06259	reinforced concrete bridge approach, 12 in.	162.600	SYS	120.00	19,512.00	
600	616-06405	riprap, revetment	600.000	TON	45.00	27,000.00	
600	616-12248	geotextile for riprap type 2a	800.000	SYS	4.00	3,200.00	
INCIDENTAL CONSTRUCTION SUBTOTALS						78,912.00	5.9%
700	701-09675	pile, steel pipe, epoxy coated, 0.312 in., 14 in.	700.000	L.F.	160.00	112,000.00	

PRICING REPORT

Date: 08/21/2018
Time: 10:17:03

Project: **Alternate C&D**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102 ALT C&D**
Bid Date: **/ /** State: **IN**
Route: **SR 26**

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
700	702-51005	concrete, a, substructure	98.500	C.Y.	1,000.00	98,500.00	
700	703-06029	reinforcing bars, epoxy coated	75,308.000	LBS	1.00	75,308.00	
700	704-51002	concrete, c, superstructure	232.900	C.Y.	925.00	215,432.50	
700	706-09960	railing, concrete fc	404.000	L.F.	70.00	28,280.00	
700	706-11620	concrete bridge railing transition, t/c	4.000	EACH	1,900.00	7,600.00	
700	707-09865	structural member, concrete, bulb-t beam, 36 in. x 49 in.	1,005.000	L.F.	330.00	331,650.00	

STRUCTURES SUBTOTALS

868,770.50
64.7%

TOTALS

1,342,882.50
100.0%



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Initials BDC Date 3/23/18 Sheet No 3 of
Chkd by BLM Date 3/27/18 Job No.
Subject ALT. ~~ALT~~ C&D

~~Alt~~ **C&D**

QC-QA-HMA, 2, 64, Surface, 9.5 mm

$$995.53 \text{ ~~ASD~~'} \times 24' \times \frac{1}{9} \times 105 \text{#/syd} \times \frac{1}{2000} =$$

220 Tons
99 Tons

QC-QA-HMA, 2, 64, Intermediate, 19.0 mm

$$995.53 \text{ ~~ASD~~'} \times 24' \times \frac{1}{9} \times 330 \text{#/syd} \times \frac{1}{2000} \times 1.01 =$$

200 Tons
443 Tons

Compacted Aggregate Base, No. 53

$$995.53 \text{ ~~ASD~~'} \times 24' \times 8" \times \frac{1}{27} \times 1.03 =$$

275 Cys

608 Cys

Revetment Riprap

Estimated

600 tons

Geotextiles for Riprap Type 2A

Estimated

600 Sys

~~Existing Structure & Remove~~

1 Cys

Earthwork Summary

Common Excavation 1010 Cys

Fill + 20% 3297 Cys $\times 1.2 =$ 3957 Cys

Borrow 3957 Cys - 1010 Cys = 2947 Cys

ALT. ~~FSR~~ C&D

PRESTRESSED CONCRETE 36x49 BULB-TEE

$$50.667' \times 5 \times 2 = 507'$$

$$99.667' \times 5 = 498'$$

$$\boxed{1005 \text{ LFT}}$$

CONCRETE CLASS "C" SUPERSTRUCTURE

$$\text{DECK } 6666 \text{ sft} \times 8" \times \frac{1}{27} = 164.6 \text{ cys}$$

$$\text{END BENT } 115.5 \text{ sft} \times 5' \times \frac{1}{27} \times 2 = 42.8 \text{ cys}$$

$$\text{FILLETS } 4.083 \times 202.0 \times 2" \times \frac{1}{27} \times 5 = 25.5 \text{ cys}$$

$$\text{total} = \boxed{232.9 \text{ cys}}$$

CONCRETE CLASS "A" IN SUBSTRUCTURE

$$\text{PIER CAP} = 102 \text{ sft} \times 3' \times \frac{1}{27} \times 2 = 22.7 \text{ cys}$$

$$\text{PIER STEM} = 68 \text{ sft} \times 12' \times \frac{1}{27} = 30.2 \text{ cys}$$

$$68 \text{ sft} \times 15' \times \frac{1}{27} = 37.8 \text{ cys}$$

$$\text{MUDSILL} = 35' \times 3' \times 1' \times \frac{1}{27} \times 2 = 7.8 \text{ cys}$$

$$\text{total} = \boxed{98.5 \text{ cys}}$$

R.C. BRIDGE APPROACH 12"

$$732 \text{ sft} \times \frac{1}{9} = 81.3 \text{ sys} \times 2 = \boxed{162.6 \text{ sys}}$$

EPoxy COATED REINFORCING STEEL

$$\text{CLASS "C"} \quad 232.9 \text{ cys} \times 225 \#/\text{cys} = 52,403 \text{ lbs}$$

$$\text{CLASS "A"} \quad 98.5 \text{ cys} \times 150 \#/\text{cys} = 14,775 \text{ lbs}$$

$$\text{APPROACH SLABS } 162.6 \text{ sys} \times 50 \#/\text{sys} = 8,130 \text{ lbs}$$

$$\text{totals} \quad \boxed{75,308 \text{ LBS}}$$



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Initials BDC Date 3/23/18 Sheet No. 2 of 2
Chkd by FLM Date 3/27/18 Job No. 2017-102
Subject ALT * CFD

ALT * CFD

14" Ø SEC PILES

$$\text{Abut's} = 7 \times 25' \times 2 = 350 \text{ LFT}$$

$$\text{PIER'S} = 7 \times 25' \times 2 = 350 \text{ LFT}$$

totals 700 LFT

FC RAILING

$$202' \times 2 = \underline{404 \text{ LFT}}$$

TFC RAILING TRANSITION

4 EACH

GUARDRAIL TRANSITION MGS, TGB

4 EACH

GUARDRAIL MGS W-BEAM, 6FT 3IN SPACING

$$\text{NW QUAD} = 100 \text{ LFT}$$

$$\text{NE QUAD} = 125 \text{ LFT}$$

$$\text{SW QUAD} = 100 \text{ LFT}$$

$$\text{SE QUAD} = 125 \text{ LFT}$$

totals 450 LFT

GUARDRAIL, MGS, Curved W-Beam, Terminal System Type I

1 EACH

GUARDRAIL END TREATMENT TYPE 'OS'

3 EACH

PRICING REPORT

Date: 08/21/2018
Time: 10:17:58

Project: **Alternate E&F**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102 ALT E&F**
Bid Date: **/ /** State: **IN**
Route:

Project Settings

Primary County:	JAY	Urban/Rural:	
Addl Counties:		Work Type:	
District:	Fort Wayne	Function Class:	
Longitude:	89° 00' 00"	Season:	
Latitude:	35° 00' 00"	Estimator:	mfitzpatrick
Log Mile:	Beg:	Constr Eng:	0.00 %
	End:	Priced Date:	/ /
Station:	Beg:	Create Date:	03/26/2018
	End:	Fed Projec No:	2017-102
Project Length:	0.0000 miles		

Project Categories

100 General Provisions	81,000.00	7.0%
200 Earthwork	148,000.00	12.8%
300 Aggregate Pavement and Bases	3,600.00	0.3%
400 Asphalt Pavement	4,320.00	0.4%
600 Incidental Construction	77,624.50	6.7%
700 Structures	843,754.00	72.8%
TOTALS:	1,158,298.50	100.0%

Major Categories

MISC.	306,624.50	26.5%
GRADE/DRAIN	0.00	0.0%
BRIDGE	843,754.00	72.8%
PAVEMENT/BASE	7,920.00	0.7%
TOTALS:	1,158,298.50	100.0%

PRICING REPORT

Date: 08/21/2018
Time: 10:18:00

Project: **Alternate E&F**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102 ALT E&F**
Bid Date: / / State: **IN**
Route:

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
100	105-06845	construction engineering	1.000	L.S.	23,000.00	23,000.00	
100	110-01001	mobilization and demobilization	1.000	L.S.	58,000.00	58,000.00	
GENERAL PROVISIONS SUBTOTALS						81,000.00	7.0%
200	201-52370	clearing right of way	1.000	L.S.	23,000.00	23,000.00	
200	202-51330	present structure, remove	1.000	L.S.	125,000.00	125,000.00	
EARTHWORK SUBTOTALS						148,000.00	12.8%
300	306-08043	milling, transition	480.000	SYS	7.50	3,600.00	
AGGREGATE PAVEMENT AND BASES SUBTOTALS						3,600.00	0.3%
400	401-07321	qc/qa-hma, 2, 64, surface, 9.5 mm	40.000	TON	108.00	4,320.00	
ASPHALT PAVEMENT SUBTOTALS						4,320.00	0.4%
600	601-01522	guardrail, transition, type tgb	4.000	EACH	2,350.00	9,400.00	
600	601-01700	guardrail, terminal system, w-beam curved, 1	1.000	EACH	2,200.00	2,200.00	
600	601-12281	guardrail mgs w-beam, 6 ft 3 in spacing	450.000	L.F.	20.25	9,112.50	
600	601-94689	guardrail, end treatment, os	3.000	EACH	2,800.00	8,400.00	
600	609-06259	reinforced concrete bridge approach, 12 in.	162.600	SYS	120.00	19,512.00	
600	616-06405	riprap, revetment	600.000	TON	43.00	25,800.00	
600	616-12248	geotextile for riprap type 2a	800.000	SYS	4.00	3,200.00	
INCIDENTAL CONSTRUCTION SUBTOTALS						77,624.50	6.7%
700	701-09675	pile, steel pipe, epoxy coated, 0.312 in., 14 in.	960.000	L.F.	160.00	153,600.00	
700	702-51005	concrete, a, substructure	98.500	C.Y.	1,000.00	98,500.00	
700	703-06029	reinforcing bars, epoxy coated	76,364.000	LBS	1.00	76,364.00	
700	704-51002	concrete, c, superstructure	227.800	C.Y.	920.00	209,576.00	

PRICING REPORT

Date: 08/21/2018
Time: 10:18:00

Project: **Alternate E&F**
Location: **SR 26 over Salamonie River**
County: **JAY**
District: **Fort Wayne**

Project ID: **2017-102 ALT E&F**
Bid Date: / / State: **IN**
Route:

Sect	Pay Item	Description	Quantity	Unit	Bid Price	Extension	Alt
700	706-09960	railing, concrete fc	404.000	L.F.	70.00	28,280.00	
700	706-11620	concrete bridge railing transition, t/c	4.000	EACH	1,900.00	7,600.00	
700	707-09865	structural member, concrete, bulb-t beam, 36 in. x 49 in.	804.000	L.F.	325.00	261,300.00	
700	709-51821	surface seal	1.000	L.S.	8,534.00	8,534.00	
STRUCTURES SUBTOTALS						843,754.00	
						72.8%	

TOTALS	1,158,298.50 100.0%
---------------	--------------------------------------

ALT. F&E

PRESTRESSED CONCRETE 36x49 BULB-TEE

$$50.667' \times 4 \times 2 = 405.33'$$

$$99.667' \times 4 = 398.67'$$

$$\text{total} = \boxed{804 \text{ Lft}}$$

CONCRETE CLASS "C" SUPERSTRUCTURE

$$\text{DECK } 6666 \text{ sft} \times 8" \times \frac{1}{27} = 164.6 \text{ cys}$$

$$\text{END BENT } 115.5 \text{ sft} \times 5' \times \frac{1}{27} \times 2 = 42.8 \text{ cys}$$

$$\text{FILLETS } 4.083 \times 202.0' \times 2" \times \frac{1}{27} \times 4 = 20.4 \text{ cys}$$

$$\text{total} = \boxed{227.8 \text{ cys}}$$

CONCRETE CLASS "A" IN SUBSTRUCTURE

$$\text{PIER CAP} = 102 \text{ sft} \times 3' \times \frac{1}{27} \times 2 = 22.7 \text{ cys}$$

$$\text{PIER STEM} = 68 \text{ sft} \times 12' \times \frac{1}{27} = 30.2 \text{ cys}$$

$$68 \text{ sft} \times 15' \times \frac{1}{27} = 37.8 \text{ cys}$$

$$\text{MUDSILL} = 35' \times 3' \times 1' \times \frac{1}{27} \times 2 = 7.8 \text{ cys}$$

$$\text{total} = \boxed{98.5 \text{ cys}}$$

R.C. BRIDGE APPROACH, 12"

$$732 \text{ sft} \times \frac{1}{9} = 81.3 \text{ cys} \times 2 = \boxed{162.6 \text{ cys}}$$

EPOXY COATED REINFORCING STEEL

$$\text{CLASS "C"} \ 227.8 \text{ cys} \times 225 \#/\text{cys} = 51,255 \text{ Lbs}$$

$$\text{CLASS "A"} \ 98.5 \text{ cys} \times 150 \#/\text{cys} = 14,775 \text{ Lbs}$$

$$\text{APPROACH SLABS } 162.6 \text{ cys} \times 50 \#/\text{cys} = 8,130 \text{ Lbs}$$

$$\text{TRANSITIONS } 4 \times 551 \text{ Lbs} = 2204 \text{ Lbs}$$

$$\text{total} = \boxed{76,364 \text{ Lbs}}$$

Alt F & E

QC-QA-HMA, 2, 64, Surface, 9.5 mm

$$(90' \times 2) \times 24' \times \frac{1}{9} \times 165 \text{ lbs/syd} \times \frac{1}{2000} = \boxed{40 \text{ Tons}}$$

~~QC-QA-HMA, 2, 64, Intermediate, 19.0 mm~~

~~$$450' \times 24' \times \frac{1}{9} \times 330 \text{ lbs/syd} \times \frac{1}{2000} \times 1.01 = \boxed{200 \text{ Tons}}$$~~

~~Compacted Aggregate Base, No. 53~~

~~$$450' \times 24' \times 8" \times \frac{1}{27} \times 1.03 = \boxed{275 \text{ Cys}}$$~~

Retement Riprap Estimated 600 tons

Geotextiles for Riprap Type 2A Estimated 800 Sys

Existing Structure, Remove Use \$125,000 1 Lsum

transition milling

$$90' \times 24' \times \frac{1}{9} \times 2 = \boxed{480 \text{ Sys}}$$



OFFICE
Indiana
8415 East 56th Street
Indianapolis, Indiana 46216
Phone: 317-544-4996
Fax: 317-544-4997

Initials BOC Date 3/23/18 Sheet No. 2 of 2
Chkd by BLM Date 3/26/18 Job No. 2017-102
Subject ALT F&E

ALT F&E

14" Ø SEC PILES

$$\text{Abut's} = 6 \times 40' \times 2 = 480 \text{ LFT}$$

$$\text{Pier's} = 6 \times 40' \times 2 = 480 \text{ LFT}$$

$$\text{totals } \boxed{960 \text{ LFT}}$$

FC RAILING

$$202' \times 2 = \boxed{404 \text{ LFT}}$$

TFC RAILING TRANSITION

$$\boxed{4 \text{ EACH}}$$

GUARDRAIL TRANSITION ON MGS, TCB

$$\boxed{4 \text{ EACH}}$$

GUARDRAIL MGS W-BEAM, 6FT 3IN SPACING

$$\text{NW QUAD} = 100 \text{ LFT}$$

$$\text{NE QUAD} = 125 \text{ LFT}$$

$$\text{SW QUAD} = 100 \text{ LFT}$$

$$\text{SE QUAD} = 125 \text{ LFT}$$

$$\text{totals } \boxed{450 \text{ LFT}}$$

GUARDRAIL, MGS, Curved W-Beam, Terminal System Type I

$$\boxed{1 \text{ EACH}}$$

GUARDRAIL END TREATMENT TYPE 'OS'

$$\boxed{3 \text{ EACH}}$$

Surface Seal

$$\text{Deck } 202' \times 35' = 7070 \text{ SFT}$$

$$\text{Appr. Slab } 732 \text{ SFT} \times 2 = 1464 \text{ SFT}$$

$$\text{total} = \boxed{8534 \text{ SFT}}$$

Appendix E

SI&A Report

Bridge Inspection Report

026-38-03430 A
SR 26
over
SALAMONIE RIVER



Inspection Date: 08/30/2017

Inspected By: Bonnie L. Money

Inspection Type(s): Fracture Critical

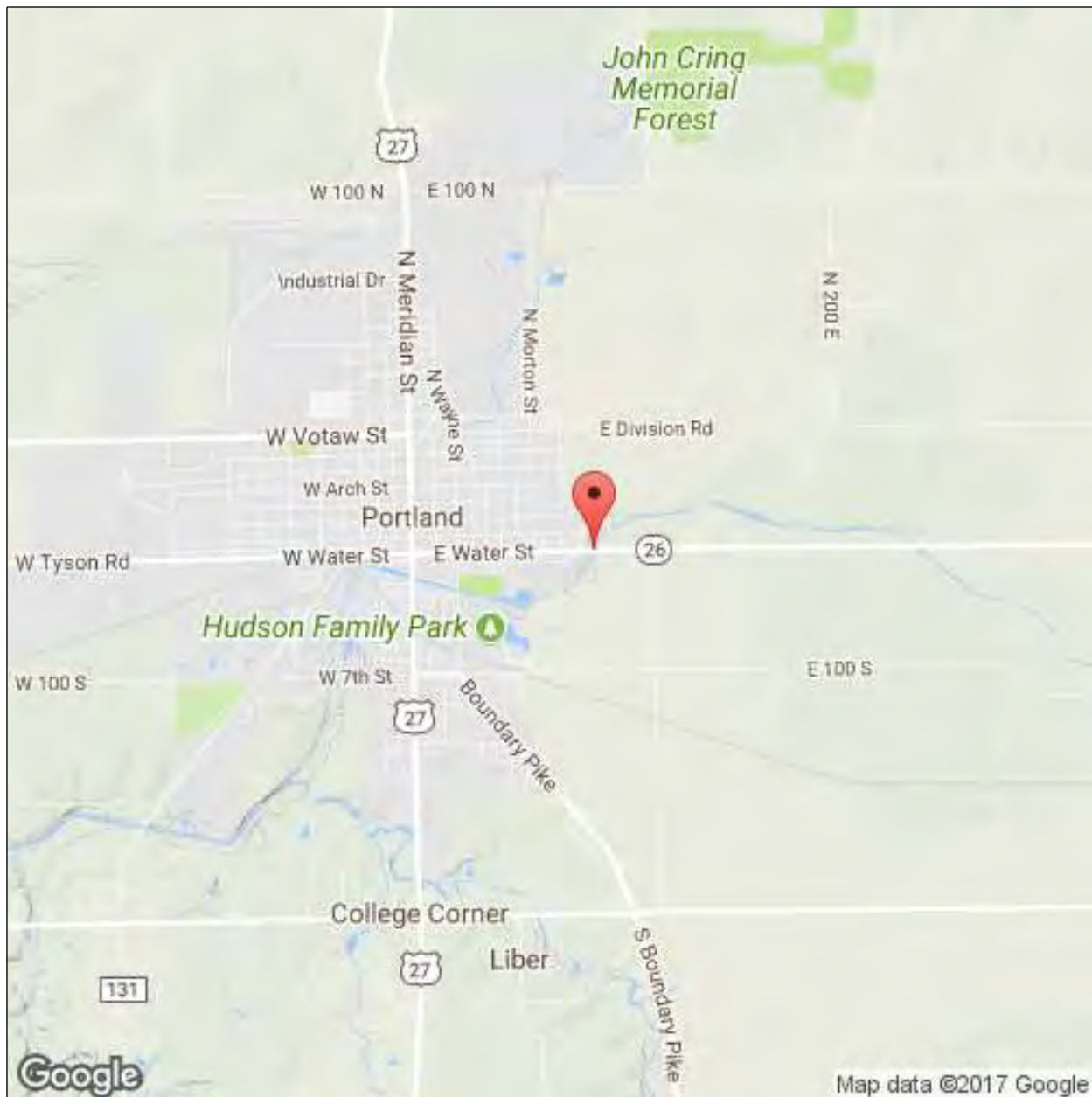
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Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report



Latitude: 40.43255
Longitude: -84.963486

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

SR 26 over Salamonie River (RP 141+23)

7-panel, Pratt (Camel-back) through-truss. Built in 1941, under contract B-2144. 'A' Rehab (replaced deck - built with 1.5" bridge deck surface) in 1979, B-12069.

Historical Bridge: "Non-Select"

Channel: the Salamonie River flows from north to south under the bridge.

Orientation ---

Abutment #1 is at the West End.

North Truss is the "Y" Truss on the Design Plans - panel points are numbered from west to east, with L0 at the west end.

South Truss is the "X" Truss on the Design Plans - panel points are numbered from east to west, with L0 at the east end.

Floor Beam #1 is at the West end of the deck.

Stringer #1 is at the South edge of the deck, in each panel.

Last Fracture Critical Inspection: conducted on 8-27-2015, using the UB-40.

Programmed Work: suspended contract for painting with a RFL date of 08/10/2016, DES # 1383052, Contract B-36498. It was last painted in 2000, under Contract M-24790, (3-coat system, blue, 136.1 tons).

Future Work: scheduled for replacement in 2021 (B-39818; Des. 1600828); Letting Date of 09/02/2020;

Roadway: new HMA on west end; chip & seal over HMA on east end; Good Condition;

Guardrail: twin-tube aluminum system on all four corners; Fair Condition;

West Approach: grooves from milling machine on surface at west end; chipping along 1A joint; wide, irregular crack along center line, with spall near 1A joint; spall on curb in SE corner;

West Joint: S-S joint; seal is intact; filled with debris;

East Joint: BS seal; adjacent concrete has lots of chipping; debris impaction of seal; ineffective;

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East Approach: similar to west approach;

*** Select Notes from 2016 Routine Inspection ***

West portal has collision damage above EBL. Used binoculars to look at area from deck. No cracks noted. Channel is bent inward, with yellow paint noted on member; peeling paint on back side of bend.

*** Notes from 2015 Routine Inspection ***

Stringers:

Section loss to flanges & webs of outside stringers in the end panels - esp. heavy @ corners - bottom flange SW has a 1" wide area of section loss - remaining steel tapers down to paper thin @ edge; holes thru webs of outside stringers @ corners: 3"x3"- SW & 1"x10"- SE; minor pitting & section loss to N. stringer in bay #2 from the East; Stringer #2 from the north on E. side of floor beam #4 - top flange damaged/torn down @ coped area (~2" tear).

Possible crack at the upper cope, at the east end of the north coping stringer, on the west side of the Floor Beam at L1, north truss, under the curb line. There is rust staining on the stringer that may indicate a crack, that may be +/- 2" long. Will need to use the UB-40 to verify this. (This is NOT a Critical Finding).

Floor Beams:

Bottom flange has 1/4" section loss in bottom flange thickness (typical 1 1/8" thick now 7/8" for a 2" wide x 3" long area along the edge of the gusset plate - L3 of N. truss; Corrosion "hot spots" on top of bottom flange of floor beam #4 - 1/8" max. depth @ 1"x1" & 2"x2" areas on W. side, near the S. truss; Floor beam # 5 - moderate section loss @ bottom flange & web pitting near N. truss, minor section loss at edge of gusset @ S. truss; Floor beams #2 & 3 near N. truss - bottom flanges have areas of pitting (1/8" max. depth).

Verticals:

U4L4 of North truss - corrosion holes through outside channel ~ level with the deck - 1" & 2" diameter;

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U2L2 of South truss - minor corrosion & pitting @ railing connection, 1 minor collision scrape - NW corner ~18" above railing;

U3L3 & U5L5 of South truss - lacing has minor corrosion on lower half of verticals;

U4L4 of South truss, U3L3 & U4L4 of North truss - minor pack rust between sway frame angles & verticals.

Diagonals:

NW & SE end posts have corrosion, pitting & minor section loss on the inside face of the outside channel sections.

U1L2 of North truss - 3 rivets have heavy corrosion & section loss bottom end on E. face;

U3L4 of North truss - outside flange has minor hot spots of corrosion on the bottom side;

U1L2 of South truss - hot spots of corrosion in the flange & web near lower chord & behind the railing - minor section loss heavier near lower chord;

U3L4 of South truss - 3 rivets have heavy corrosion & section loss on the outside flange;

U4L3 of South truss - ~4' long area of minor mill scale rusting near the bottom on the inside face of the outside flange.

Lower Chords:

Corrosion & section loss to lower chord splice plates (1/4" max. edge loss) - N. truss near L4 and S. truss near L2 & L4;

Pitting areas with minor section loss painted over are typical;

L0L1 of North truss - minor corrosion @ E. end top of web & flanges;

L1L2 of North truss - some pitting 1/8" deep, 1 small spot with corrosion inside flange near L2;

L2L3 of North truss- few small spots of pitting & section loss up to 1/8" deep on inside faces @ L3;

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L6L7 of North truss - corrosion, pitting & minor section loss on top, below the NW end post;

L0L1 of South truss - a few hot spots of corrosion with minor section loss;

L2L3 of South truss - 3" diameter pitting area on the inside flange @ L3 - 1/8" deep section loss;

L3L4 of South truss - pitting & minor section loss (1/8" max. depth) - inside faces of flanges on top;

L6L7 of South truss - heavy corrosion below SE end post - flange up to 1/8" deep loss x1"x16" on inside flange, 1/4" loss x 2" dia. outside flange, 1/8"x1"x24" area near web.

Upper Chords and End Post:

Steel Lacings have corrosion & major section loss or are missing @ NW & SE end posts, (both L0-U1's), over the lower +- 8-feet.

All other Upper Chord Members looked to be in good condition, from the deck.

Gusset Plates:

Vertical Gusset Plates - connecting truss members:

All plates 3/8" thick, unless noted otherwise;

At L1 and L6, there are two individual plates, one on each side of the vertical;

L0 of North truss - fairly heavy corrosion & section loss near end of lower chord;

L2 of North truss - slight bowing of outside plate W. of vertical, 1/4" pack rust @ U2L2, pitting outside face over U2L2 near top of plate;

L3 of North truss - pitting & section loss painted over on inside plate W. of vertical;

L4 of North truss - minor outward bow of inside & outside plates on W.

Bridge Inspection Report

side of vertical, pitting areas;

L5 of North truss - pitting & section loss 1/16" x 2" diameter @ end of U6L5 on the inside face of the inside plate W. of the vertical, pack rust bows outside plate out ~1/4" E. of vertical;

L6 of North truss - plate E. of vertical has 2" diameter hole (section loss), below centerline of rivets (see picture), 1/8" deep x 1" diameter pitting area between horizontal & vertical rivet lines;

L7 of North truss - heavy corrosion, minor section loss & pack rust near end of lower chord;

L0 of South truss - 15/32" thick - inside & outside plates, hot spots of corrosion @ SE end post, section loss areas - both plates, inside faces underneath L0-L1 member, near the east end of the L0-L1 rivets. Section loss is +/- 60% over an area that is 3" high X 10" long, (this is NOT a Critical Finding);

L1 of South truss - minor corrosion @ edges;

L2 of South truss - minor outward bow of outside plate E. of vertical;

L3 of South truss - pitting & section loss @ end of U2L3 - W. of vertical;

L4 of South truss - pitting & minor section loss, minor corrosion & some pack rust between gusset plate & U5L4;

L5 of South truss - minor pitting, outside plate W. of vertical - edge bows out 1/4" due to pack rust;

L6 of South truss - pitting painted over W. of vertical;

L7 of South truss - minor pitting.

Connection plates:

There is 2- 1"x1" hole in the horizontal base plate in the NW & SW corner, at the corner of the railing post connection - seen by standing on top of the bridge, leaning over the railing & looking down.

Horizontal connection plates: moderate corrosion & section loss- esp. @ SE end post; pack rust causing some distortion between floor beams & gussets @ L2 of N. truss, L5 of S. truss and at both ends of floor beam #2 (L6 of N. truss & L1 of S. truss).

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Lacings:

Steel Lacings have corrosion & fairly heavy section loss or are missing @ NW & SE end posts.

Rivets:

Heavy corrosion of rivets @ gusset plate in SE corner; other scattered rivets have some section loss.

Collision Damage:

Very minor impact damage to the East Portal.

Bearings:

The concrete support block for the east end floor beam has spalled in the support area. Steel Bearings are rusted, but OK.

Maintenance:

There are trees that protrude through the North Truss and over the north shoulder area, over the bridge deck. The leaves from these trees fall off and fill the lower truss chords all winter long. These trees should be cut way back from the truss. The truss needs to be cleaned out at least twice a year in order to prevent corrosion, so as to keep this bridge in service for many more years.

***** Gusset Plate Inspection on 09/13/2012 by RQAW *****

Jim Lesh of RQAW, Load Rated the Gusset Plates on 09/25/2012, after conducting a field inspection. Jeremy Hunter checked the calculations on 10/02/2012.

The RQAW Inspection Notes included the following:

North Truss -- there is bowing of the L4-L5 gusset plates. There is pack rust that has developed between the members and the gusset plates plate which has the caused gusset plate to warp. This warping will put tensile

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stress into the rivets which decreases their shear capacity.

South Truss -- there is warping of the gusset plate at L-2.

From the analysis, it is noted that: the rows of rivets affected by the warping and prying action were removed from the gusset capacity checks for the corresponding members. These capacity reductions did not result in a governing load rating for this bridge.

The full Gusset Plate analysis report has been attached into "BIAS".

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Bridge Inspection Report

IDENTIFICATION

(1) STATE CODE:	185 - Indiana	(12) BASE HIGHWAY NETWORK:	0
(8) STRUCTURE:	007040	(13A) INVENTORY ROUTE:	
(5 A-B-C-D-E) INV. ROUTE:	1 - 3 - 1 - 00026 - 0	(13B) SUBROUTE NUMBER:	
(2) HIGHWAY AGENCY DISTRICT:	03 - Greenfield	(16) LATITUDE:	40.43255
(3) COUNTY CODE:	038 - JAY	(17) LONGITUDE:	-84.963486
(4) PLACE CODE:	61236 - PORTLAND	(98) BORDER	
(6) FEATURES INTERSECTED:	SALAMONIE RIVER	A) STATE NAME:	
(7) FACILITY CARRIED:	SR 26	B) PERCENT	%
(9) LOCATION:	00.78 E US 27	(99) BORDER BRIDGE STRUCT. NO:	
(11) MILEPOINT:	0014.300		

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN:	(45) NUMBER OF SPANS IN MAIN 001 UNIT:		
A) KIND OF MATERIAL/DESIGN:	3 - Steel	(46) NUMBER OF APPROACH SPANS:	0000
B) TYPE OF DESIGN/CONSTR:	10 - Truss - Thru	(107) DECK STRUCTURE TYPE:	1 - Concrete Cast-in-Place
(44) STRUCTURE TYPE, APPROACH SPANS:	(108) WEARING SURFACE/PROT SYS:		
A) KIND OF MATERIAL/DESIGN:	0 - Other	A) WEARING SURFACE:	3 - Latex Concrete or similar additive
B) TYPE OF DESIGN/CONSTR:	00 - Other	B) DECK MEMBRANE:	0 - None
		C) DECK PROTECTION:	0 - None

AGE OF SERVICE

(27) YEAR BUILT:	1941	(28) LANES:	
(106) YEAR RECONSTRUCTED:	1979	A) ON BRIDGE:	02
(42) TYPE OF SERVICE:		B) UNDER BRIDGE:	00
A) ON BRIDGE:	1 - Highway	(29) AVERAGE DAILY TRAFFIC:	002541
B) UNDER BRIDGE:	5 - Waterway	(30) YEAR OF AVERAGE DAILY TRAFFIC:	2014
		(109) AVERAGE DAILY TRUCK TRAFFIC:	16 %
		(19) BYPASS DETOUR LENGTH:	003 MI

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Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

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GEOMETRIC DATA

(48) LENGTH OF MAX SPAN:	0150.0	FT	(35) STRUCTURE FLARED:	0 - No flare
(49) STRUCTURE LENGTH:	00154.7	FT	(10) INV RTE, MIN VERT CLEARANCE:	15.00 FT
(50) CURB/SIDEWALK WIDTHS:			(47) TOT HORIZ CLEARANCE:	028.0 FT
A) LEFT	00.5	FT	(53) VERT CLEAR OVER BR RDWY:	14.64 FT
B) RIGHT:	00.5	FT	(54) MIN VERTICAL UNDERCLEARANCE:	
(51) BRDG RDWY WIDTH CURB- TO-CURB:	028.0	FT	A) REFERENCE FEATURE:	N
(52) DECK WIDTH, OUT-TO-OUT:	029.0	FT	B) MIN VERT UNDERCLEAR:	0 FT
(32) APPROACH ROADWAY	028.0	FT	(55) LATERAL UNDERCLEARANCE RIGHT:	
(33) BRIDGE MEDIAN:	0 - No median		A) REFERENCE FEATURE:	N
(34) SKEW:	00	DEG	B) MIN LATERAL UNDERCLEAR:	000.0 FT
			(56) MIN LATERAL UNDERCLEAR ON LEFT:	000.0 FT

INSPECTIONS

(90) INSPECTION DATE:	10/13/2016	(91) DESIGNATED INSPECTION	24 MONTHS
(92) CRITICAL FEATURE INSPECTION:		FREQUENCY:	
A) FRACTURE CRITICAL REQUIRED/FREQUENCY:	Y 24	(93) CRITICAL FEATURE INSPECTION DATE:	
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY:	N	A) FRACTURE CRITICAL DATE:	08/30/2017
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY:	N	B) UNDERWATER INSP DATE:	
		C) OTHER SPECIAL INSP DATE:	

CONDITION

(58) DECK:	5 - Fair Condition (minor section loss)	(60) SUBSTRUCTURE:	5 - Fair Condition (minor section loss)
(58.01) WEARING SURFACE:	5 - Fair Condition	(61) CHANNEL/CHANNEL PROTECTION:	5 - Bank eroded.. major damage
(59) SUPERSTRUCTURE:	5 - Fair Condition (minor section loss)	(62) CULVERTS:	N - Not Applicable

CONDITION COMMENTS

(58) DECK: 5 - Fair Condition (minor section loss)

Comments:

Deck (underside) has corrosion to metal (SIP) forms - several areas of heavy corrosion at the corners, especially at the NE end of the deck, and along the edges of the Floor Beam upper flanges, near the copings.

Concrete Copings have minor spalls, with narrow vertical & horizontal cracks.

Steel bridge railing has corrosion at connections & section loss holes - SE & NW; minor collision rubs & scratches on both railings; 2 railing bolts sheared off on the back side of the first vertical @ NE corner

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(58.01) WEARING SURFACE: 5 - Fair Condition

Comments:

Wearing surface has numerous narrow transverse cracks over each interior Floor Beam. Usually two or three parallel transverse cracks with random map cracking propagating out. A few hairline longitudinal cracks at the west end of the deck. One concrete patch in the WBL at east end. Three concrete patches in the EBL, near mid-span. A drain grate along the north curb line has been replaced with a steel plate.

(59) SUPERSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:

See the 08/27/2015 Fracture Critical Inspection Report for more details. Inspection used Standard No. 1522 to identify the truss panel points (labeled left-to-right from roadway side of each truss). L0-X is in SE corner of bridge; L0-Y is in NW corner of bridge. South is "X" truss, north is "Y" truss, Floor Beam 1 is on west end, Floor Beam 8 is on east end, Stringer1 is on south side, and Stringer10 is on north side. Deterioration (loss of lacing on end posts, corrosion of gusset plates) in SE & NW corners are of particular concern. Noticeable vertical and lateral movement under live loading, with booms/bangs heard at ends of deck (likely from loose joints and/or floor beams tapping support blocks).

See the Executive Summary for general comments/notes on superstructure members.

(60) SUBSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:

Breastwalls have wide vertical and horizontal cracks; delaminations & spalls in re-pointed areas, both E & W Abutments, worse at the East Abutment, due to water leakage through the BS joint.

Concrete Caps and Backwalls have minor vertical cracks.

Erosion at corners - concrete turnout/paved side ditch undermined, cracked & settled @ NE & SE corners; ponding at the west abutment; fairly deep erosion gulleys on both banks below bridge.

(61) CHANNEL/CHANNEL PROTECTION 5 - Bank eroded.. major damage

Comments:

Channel has very heavy bank erosion, many downed trees and exposed roots.

Evidence of highwater above the lower chord - see pictures (8/9/11).

No rip rap or other channel protection at or nearby the bridge. - No evidence of channel scour.

(62) CULVERTS: N - Not Applicable

Comments:

LOAD RATING AND POSTING

(31) DESIGN LOAD:	5 - HS 20	(66) INVENTORY RATING:	28
(70) BRIDGE POSTING	5 - Equal to or above legal loads	(65) INVENTORY RATING METHOD:	1 - Load Factor (LF)
(41) STRUCTURE OPEN/POSTED/CLOSED:	A - Open	(66B) INVENTORY RATING (H):	16
(64) OPERATING RATING:	46	(66C) TONS POSTED :	
(63) OPERATING RATING METHOD:	1 - Load Factor (LF)	(66D) DATE POSTED/CLOSED:	

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

APPRAISAL

SUFFICIENCY RATING:	63.6	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	0	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	5	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	4	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	0

(71) WATERWAY ADEQUACY: 9 - Bridge Above Flood Water Elevations

Comments:

~4' max. HW to E. approach PG.

Evidence of highwater above the lower chord - see pictures (8/9/11).

(72) APPROACH ROADWAY ALIGNMENT: 8 - Equal to present desirable criteria

Comments:

Good. SR-26 is straight and flat on both sides of the bridge.

Approach slabs have wide longitudinal cracks along center construction joint.

Approach guardrail is substandard - aluminum; leaning outward.

Approach pavement has wide random cracks & minor rutting; wedges replaced in 2000.

West Shoulders failing.

Narrow shoulders all sides. Little room to park inspection vehicles.

(113) SCOUR CRITICAL BRIDGES: 8 - Stable for scour conditions

Comments:

Spread Footings, ON Piles, at both Abutments.

Bottom of Footing elevation = 75.77' at West Abutment.

Bottom of Footing elevation = 75.02' at East Abutment.

The 1941 Flow Line elevation = 78.80'

The 1933 High Water elevation = 94.80'

Soil is sand and clay over gravel

CLASSIFICATION

(20) TOLL:	3 - On Free Road	(21) MAINT. RESPONSIBILITY:	01 - State Highway Agency
(22) OWNER:	01 - State Highway Agency	(26) FUNCTIONAL CLASS OF INVENTORY RTE:	16 - Urban - Minor Arterial
(37) HISTORICAL SIGNIFICANCE:	2 - Eligible for National Register	(100) STRAHNET HIGHWAY:	Not a STRAHNET route
(101) PARALLEL STRUCTURE:	N - No parallel structure	(102) DIRECTION OF TRAFFIC:	2-way traffic
(103) TEMPORARY STRUCTURE:		(104) HIGHWAY SYSTEM OF INVENTORY ROUTE:	0 - Structure/Route is NOT on NHS
(105) FEDERAL LANDS HIGHWAYS:	0-Not Applicable	(110) DESIGNATED NATIONAL NETWORK:	Inventory route on National Truck Network
(112) NBIS BRIDGE LENGTH:	Yes		

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
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Bridge Inspection Report

NAVIGATION DATA

(38) NAVIGATION CONTROL:	0 - No navigation control on waterway (bridge permit not required)	(39) NAVIGATION VERTICAL CLEAR: 000.0 FT
(111) PIER OR ABUTMENT PROTECTION:		(116) MINIMUM NAVIGATION VERT. CLEARANCE, VERT. LIFT BRIDGE: FT
		(40) NAV HORIZONTAL CLEARANCE: 0000.0 FT

PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK:	38 - Other Structural Work	(95) ROADWAY IMPROVEMENT COST: \$ 000000
(75B) WORK DONE BY:	1 - Work to be done by contract	(96) TOTAL PROJECT COST: \$ 000116
(76) LENGTH OF IMPROVEMENT:	000154. FT	(97) YR OF IMPROVEMENT COST EST: 2015
	7	(114) FUTURE AVG DAILY TRAFFIC: 004600
(94) BRIDGE IMPROVEMENT COST:	\$ 000116	(115) YR OF FUTURE ADT: 2030

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

- No items available

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

Miscellaneous Asset Data - Asset # 026-38-03430 A

Bats: seen or heard under structure? N

Birds/swallows/nests seen? Empty nests present? N

Scour POA? No

Inv Type S - State Road Inv # 26

Reference Post 141

Offset 23

Joints

Location: Transverse

Type: A

Rating (Lowest Rated Joint): 3

BS seal; adjacent concrete has lots of chipping; debris impaction of seal; ineffective.

Paint

Rating 5

Paint Year 2000

Paint is failing in many areas at or below bridge railing level, particularly at corners of bridge.

⚠ Asset Type Has Changed

Original RP Data Source Roads & Highways

RP

141

Offset

23

Compliance Month:

Bridge File Complete

Date:

Organization:

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Structure Number: 007040
Facility Carried: SR 26

Bridge Inspection Report

Channel Measurement

Date of Channel Measurements:
Distance Measured From:
Depth Measured From:
Number of Measurement Points Taken:

Number of Fixed Objects in Channel:
Water Level:
High Water Mark:
Measurement Type:

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

Date Reported: 02/18/2015
Priority: Grey - 4
Work Code: Superstructure Cleaning & Flushing

Deficiency Description:

Tree leaves and other debris has filled up many areas of the lower truss chords and lower truss connections. This debris is allowing moisture and chlorides to stay in contact with the steel which results in continued corrosion.

The lower truss chords and connection areas should be thoroughly cleaned at least twice a year in order to keep corrosion to a minimum on this historic bridge. They should be cleaned in late November after all leaves have fallen, and again in late April after all salting activities are complete.

Work Description:

Date Repairs Completed:

Maintenance Comments:

Stage: Open

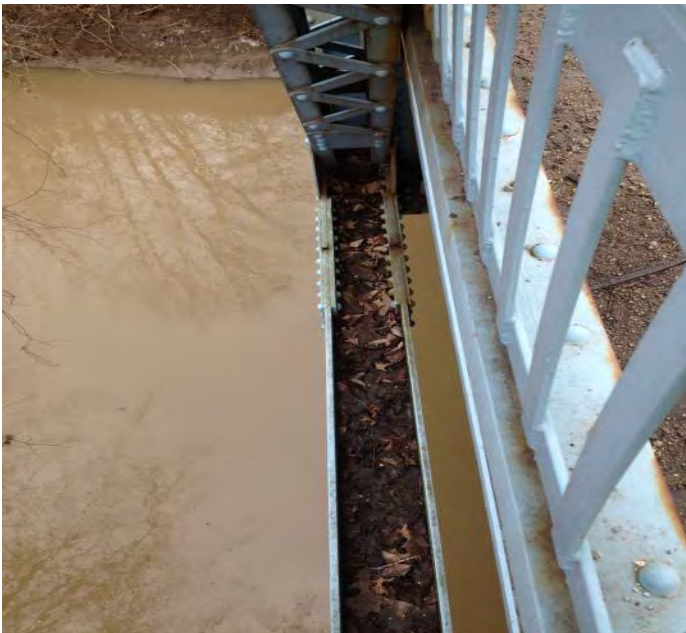


PHOTO 1 Description 007 - Looking E at typical debris in lower truss chords - 26-38-03430A Salamonie River NBI 007040 01-21-2015.JPG

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

Date Reported: 02/18/2015
Priority: Grey - 4
Work Code: Brush Cutting / Herbicide Spray

Deficiency Description:

Tree branches are extending through the north truss and almost into traffic over the north shoulder of the bridge deck. Leaves and branches are falling down and into the lower truss members and connections. The tree branches should all be cut back +- 20-feet away from the truss members. This should keep the branches away from traffic and the bridge, and reduce the amount of debris that fills up the lower truss chords. It will also allow room for INDOT Inspectors to use our Underbridge Inspection Machine to inspect the bridge.

A few small trees on the south side of the truss, at the southwest wing area, should also be trimmed back.

Work Description:

Date Repairs Completed:

Maintenance Comments:

Stage: Open



PHOTO 1 Description 009 - Looking W at typical tree branches extending through truss members - 26-38-03430A Salamonie River NBI 007040 01-21-2015.JPG

Stage: Open



PHOTO 2 Description 011 - Looking SW at N elevation - 26-38-03430A Salamonie River NBI 007040 01-21-2015.JPG

Inspector: Bonnie L. Money
Inspection Date: 08/30/2017

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

Date Reported: 10/13/2016

Priority: Green - 3

Work Code: Superstructure Cleaning & Flushing

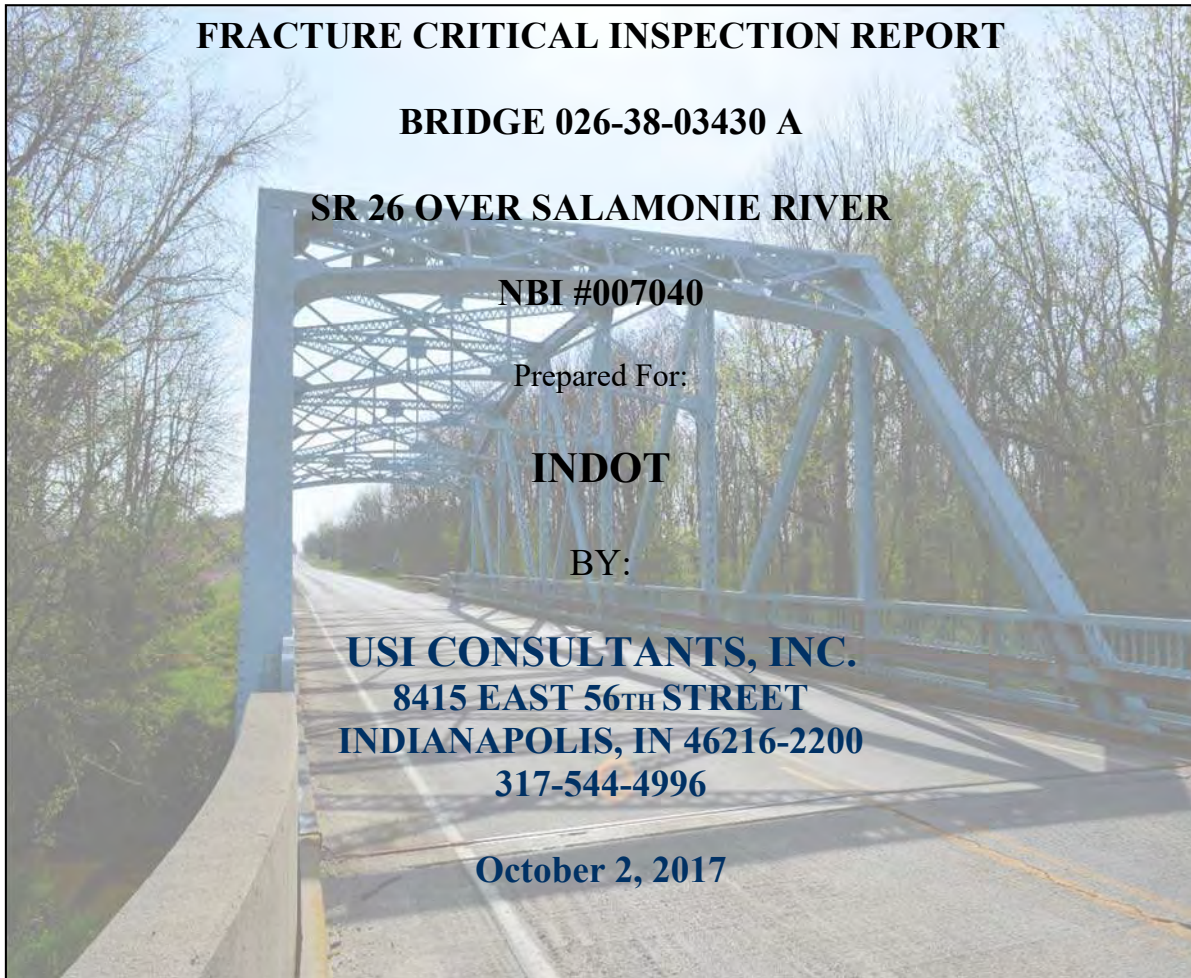
Deficiency Description:

Hornet Net on Superstructure

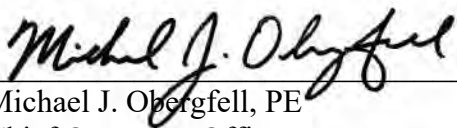
Work Description:

Date Repairs Completed:

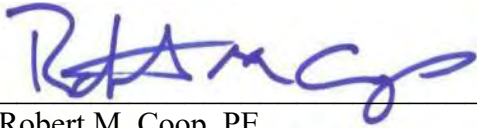
Maintenance Comments:



I hereby certify that this report was prepared under my direct personal supervision and that I am a duly Registered Professional Engineer under the laws of the State of Indiana.


Michael J. Obergfell, PE
Chief Operating Officer




Robert M. Coop, PE
Bridge Inspection Manager

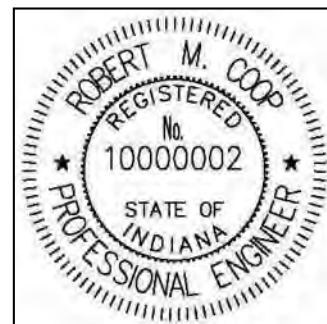


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APPENDICES

APPENDIX A - FIGURES

Figure 1 - Location Map

Figure 2 - Truss Profile

APPENDIX B - PHOTOGRAPHS

APPENDIX C - 2017 Structure Inventory and Appraisal Form

APPENDIX D - QUALIFICATIONS

Inspector Resumes Located at End of Reports

FRACTURE CRITICAL INSPECTION REPORT

BRIDGE 026-38-03430 A SR 26 OVER SALAMONIE RIVER NBI #007040

I. LOCATION AND DESCRIPTION

Bridge No. 026-38-03430 A, a seven (7) panel Pratt through truss, carries SR 26 over the Salamonie River in Jay County, Indiana at RP 141+23. The bridge was built in 1941 and is identified as a Historic Non-Select bridge. The bridge was repaired in 1979 with a new deck and some structural repairs. The structure length is 154.7 feet long with a maximum span of 150 feet. The bridge has a clear roadway width of 28 feet accommodating two lanes of traffic and an out to out width of 29 feet. The bridge is currently load rated for 20 tons. The average daily traffic (ADT) in 2014 was estimated at 2541 vehicles per day.

The bridge is located immediately east of Portland, Indiana at latitude 40° 25' 57" and longitude of -84° 57' 48". See Appendix A Figure 1 for the location map.

II. PURPOSE AND SCOPE

The purpose of this inspection was to provide an in-depth condition evaluation of all fracture critical members of the steel truss. The scope of the inspection consisted of a detailed, hands-on examination of all fracture critical members, fatigue sensitive details and connections.

This report includes a description of the structure, inspection procedures used, summary of the findings, an evaluation of the findings, and any recommendations based on these findings.

III. INSPECTION PROCEDURE

On August 17, 2017, coordination plans were developed with INDOT's Greenfield District to conduct the inspection of SR 26 over the Salamonie River on August 30 and 31, 2017 between the hours of 8:00-2:00 each day. Subsequently, INDOT provided traffic control, a platform truck, the UB-32 bridge truck, and equipment operators. The east bound lane was closed on August 30 and the West Bound lane was closed on August 31. USI Consultants performed the inspection.

Prior to the inspection of the bridge, USI obtained and reviewed the previous Fracture Critical Inspection report, as built plans and standard INDOT camel back truss plans. A four person team consisting of Bonnie L. Money, PE (IN000253-2019-ATL-F-LRE), Rob Coop, PE (IN000127-2020-ATL-UF), Brett Longenecker, EI (IN000248-2019-ATL-UF) and Jason Peterson (Bridge Inspector) performed the fracture critical inspection.

The fracture critical inspection consisted of detailed arm's length inspection of all members and connections of the steel truss. Visual inspection of joints, members, and bearings were performed to locate possible problem areas in the truss members. Deficiencies were documented with photos and notes and are summarized below in Section III.F of this report.

A. Equipment

- Hard Hat
- Safety Glasses
- Wire Brush
- Hammer
- Tape Measure
- Camera
- Flashlight
- Magnifying Glass
- Probe Rod
- Ladder
- Plumb Bob
- Level

B. Access

Parking was available along the side of the road near the end of the approach guardrail east and west of the bridge. Abutments and bearings were accessed on foot underneath the bridge. Lower chords and connections were evaluated using an Aspen B 32 bridge truck and the truss above deck was accessed using INDOT's platform truck.

C. Maintenance of Traffic

INDOT provided maintenance of traffic, closing the eastbound lane on day one and the westbound lane on day two.

D. Inspection Procedure

All members and connections, including joints, members, and bearings, were inspected at arm's length to identify any defects and the extent of deterioration. Photographs were taken to document typical conditions and significant defects.

E. Bridge Orientation:

- Abutment #1 is at the West End.
- North Truss is the "Y" Truss on the Design Plans - panel points are numbered from west to east, with L0 at the west end.
- South Truss is the "X" Truss on the Design Plans - panel points are numbered from east to west, with L0 at the east end.
- Floor Beam #1 is at the West end of the deck.
- Stringer #1 is at the South edge of the deck, in each panel.
- Channel - The Salamonie River flows from north to south under the bridge.

IV. CONDITION DESCRIPTION

Stringers - Minor to moderate section loss to flanges and webs of fascia stringers in the end panels primarily at the stringer connections to floorbeams. Defects primarily on the exterior face of the fascia beams.

- Fascia stringer, L3-L2 at L3-Y – 1" diameter hole in bottom flange; remaining steel tapers down to paper thin at edges (See Photo 18);
- Stringer 1 at Northeast corner (L0-Y) – section loss (1/4" x 3" x 8" in Flange; 1/8" x 6" x 8" in Web), debris collecting on bottom flange, etc. (See Photo 16)
- Section loss to Stringer 1 (L1-L2 Y) approximately 1/8" x 4" x 8" in Web and 1/8" x 4" x 6" in Bottom Flange (See Photo 14)
- Stringer #2 from the north on E. side of floor beam #4 - top flange damaged with a 2" tear in the coped area.

Floor Beams – All floor beams have some pitting, rust, and/or deterioration at the ends at the lower lateral bracing gusset plate connections. No significant defects were noted on the interior sections of the floor beams.

- Floor beams 2 and 3 near N. truss – bottom flanges have areas of pitting of up to 1/8" deep.
- Floor beam 4 - Corrosion "hot spots" on top of bottom flange 1/8" max. depth at 1"x1" and 2"x2" areas on west side, near the south truss.
- Floor beam 5 - Bottom flange has 1/4" section loss in bottom flange (originally 1 1/8" thick reduced to 7/8") for a 2" wide x 3" long area along the edge of the horizontal gusset plate at the north end (See Photo 19); minor section loss at edge of gusset at S. truss;
- Floor beam 7 – Section loss of 1/4" x 3" x 2' long at south end (See Photo 25).

Verticals:

- U4L4 of North truss - corrosion holes through outside channel at deck level - 1" and 2" diameter;
- U2L2 of South truss - minor corrosion and pitting at railing connection, one minor collision scrape at the NW corner approximately 18" above railing;
- U3L3 and U5L5 of South truss - lacing has minor corrosion on lower half of verticals;
- U4L4 of South truss, U3L3 and U4L4 of North truss - minor pack rust between sway frame angles and verticals.

Diagonals:

- NW and SE end posts have corrosion, pitting and minor section loss on the inside face of the outside channel section (See Photo 28).
- U1L2 of North truss - 3 rivets have heavy corrosion and section loss bottom end on E. face
- U3L4 of North truss - outside flange has minor hot spots of corrosion on the bottom side
- U1L2 of South truss - hot spots of corrosion in the flange and web near lower chord and behind the railing - minor section loss heavier near lower chord;
- U3L4 of South truss - 3 rivets have heavy corrosion and section loss on the outside flange;
- U4L3 of South truss – approximately 4' long area of minor mill scale rusting near the bottom on the inside face of the outside flange.

Lower Chords:

- Corrosion and section loss to lower chord splice plates (1/4" max. edge loss) - N. truss near L4 and S. truss near L2 and L4;
- Pitting areas with minor section loss painted over are typical;
- L0L1 of North truss - minor corrosion at E. end top of web and flanges;
- L1L2 of North truss - some pitting 1/8" deep, 1 small spot with corrosion inside flange near L2;
- L2L3 of North truss- few small spots of pitting and section loss up to 1/8" deep on inside faces at L3;
- L3L4 of North truss – deep pitting and section loss along inside face of interior vertical leg – 1/16" to 3/8" x 3" by Full Length (See Photo 27)
- L4L5 of North truss – At L5 pitting, minor rust, typical
- L5L6 of North truss - corrosion, pitting and minor section loss on top, below the NW end post;
- L6L7 of North truss - corrosion, pitting and minor section loss on top, below the NW end post;
- L0L1 of South truss - a few hot spots of corrosion with minor section loss;
- L2L3 of South truss - 3" diameter pitting area on the inside flange at L3 - 1/8" deep section

- loss;
- L3L4 of South truss - pitting and minor section loss (1/8" max. depth) - inside faces of flanges on top;
- L6L7 of South truss - heavy corrosion below SE end post - flange up to 1/8" deep loss x1"x16" on inside flange, 1/4" loss x 2" dia. outside flange, 1/8"x1"x24" area near web (See Photos 35 and 36).

Upper Chords and End Post:

- Steel lacings bars at the northwest and southeast end posts have corrosion and major section loss or are missing over the lower +/- 8-feet (See Photos 9 and 10).
- All other Upper Chord Members are in good condition.

Gusset Plates - Vertical Gusset Plates - connecting truss members: All plates 3/8" thick, unless noted otherwise

- At L1 and L6, there are two individual plates, one on each side of the vertical
- L0 of North truss – Moderate to heavy corrosion and section loss near end of lower chord
- L2 of North truss - slight bowing of outside plate W. of vertical, 1/4" pack rust at U2L2, pitting outside face over U2L2 near top of plate
- L3 of North truss - pitting and section loss painted over on inside plate W. of vertical
- L4 of North truss - minor outward bow of inside and outside plates on W. side of vertical, pitting areas
- L5 of North truss - pitting and section loss 1/16" x 2" diameter at end of U6L5 on the inside face of the inside plate W. of the vertical, pack rust bows outside plate out ~1/4" E. of vertical. Rivets at L5U6 at both exterior legs – 3 of 7 rivets have 50% section loss
- L6 of North truss - plate E. of vertical has 2" diameter hole (section loss), below centerline of rivets, 1/8" deep x 1" diameter pitting area between horizontal and vertical rivet lines
- L7 of North truss - heavy corrosion, minor section loss and pack rust near end of lower chord
- L0 of South truss - 15/32" thick - inside and outside plates, hot spots of corrosion at SE end post, section loss areas - both plates, inside faces underneath L0-L1 member, near the east end of the L0-L1 rivets. Section loss is +/- 60% over an area that is 3" high X 10" long, (this is NOT a Critical Finding)
- L1 of South truss - minor corrosion at edges
- L2 of South truss - minor outward bow of outside plate E. of vertical
- L3 of South truss - pitting and section loss at end of U2L3 - W. of vertical (See Photo 26)
- L4 of South truss - pitting and minor section loss, minor corrosion and some pack rust between gusset plate and U5L4
- L5 of South truss - minor pitting, outside plate W. of vertical - edge bows out 1/4" due to pack rust
- L6 of South truss - pitting painted over W. of vertical;
- L7 of South truss - minor pitting.

Connection Plates:

- There is 2- 1"x1" hole in the horizontal base plate in the NW and SW corner, at the corner of the railing post connection - seen by standing on top of the bridge, leaning over the railing and looking down.
- Horizontal connection plates have moderate corrosion and section loss, especially at the southeast end post; pack rust causing some distortion at most locations.

- All lower lateral bracing gusset plates have pack rust and deformation at connections (See Photos).

Lacings - Steel Lacings have corrosion and moderate to heavy section loss especially in the splash zone. Lacing bars are missing at the northwest and southeast endposts (See Photos 9 and 10).

Rivets - Heavy corrosion of rivets at gusset plate in SE corner; other scattered rivets have some section loss (See Photo 35).

Collision Damage - Minor impact damage to the East Portal (See Photo 40).

Bearings - The **concrete** support block for the east end floor beam has spalled in the support area. Steel Bearings are rusted, but functional. (See Photos 29-38).

Maintenance - There are trees that protruded through the North Truss and over the north shoulder area and over the bridge deck. INDOT Maintenance removed several branches and limbs affecting the bridge on August 31, 2017. The truss, abutment bridge seats and bearings need to be cleaned at least twice a year to prevent corrosion and keep this bridge in service for many more years.

Additional information From Previous Gusset Plate Inspection on 09/13/2012 by RQAW:

Jim Lesh of RQAW, Load Rated the Gusset Plates on 09/25/2012, after conducting a field inspection. Jeremy Hunter checked the calculations on 10/02/2012.

The RQAW Inspection Notes included the following:

North Truss -- there is bowing of the L4-L5 gusset plates. There is pack rust that has developed between the members and the gusset plates plate which has the caused gusset plate to warp. This warping will put tensile stress into the rivets which decreases their shear capacity.

South Truss -- there is warping of the gusset plate at L-2.

From the analysis, it is noted that: the rows of rivets affected by the warping and prying action were removed from the gusset capacity checks for the corresponding members. These capacity reductions did not result in a governing load rating for this bridge.

The full Gusset Plate analysis report has been attached into "BIAS".

V. RECOMMENDATIONS

No major work is recommended at this time. It is recommended that the bearing areas, lower chords and lower connections be cleaned at regular intervals as part of the local routine maintenance. This will prevent debris and moisture from accumulating and accelerating the deterioration process.

Recommend installing riprap at the east abutment to protect the abutment from erosion.

In accordance with the National Bridge Inspection Standards, the special inspection should be conducted every two years.

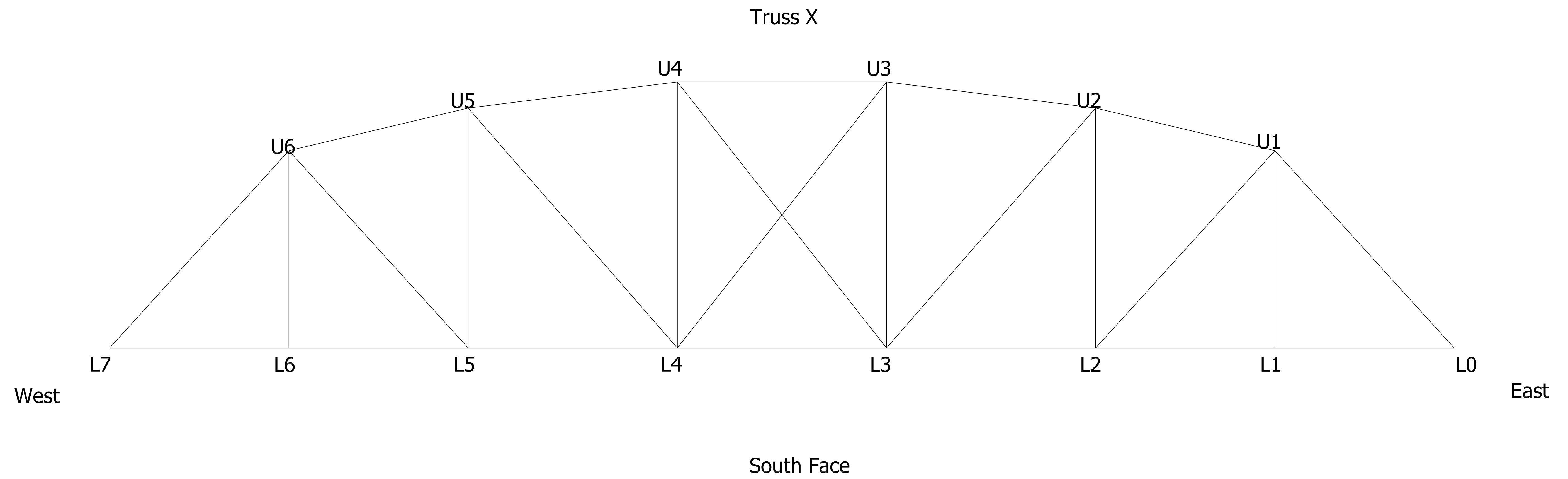
VI. NBIS CODED INFORMATION

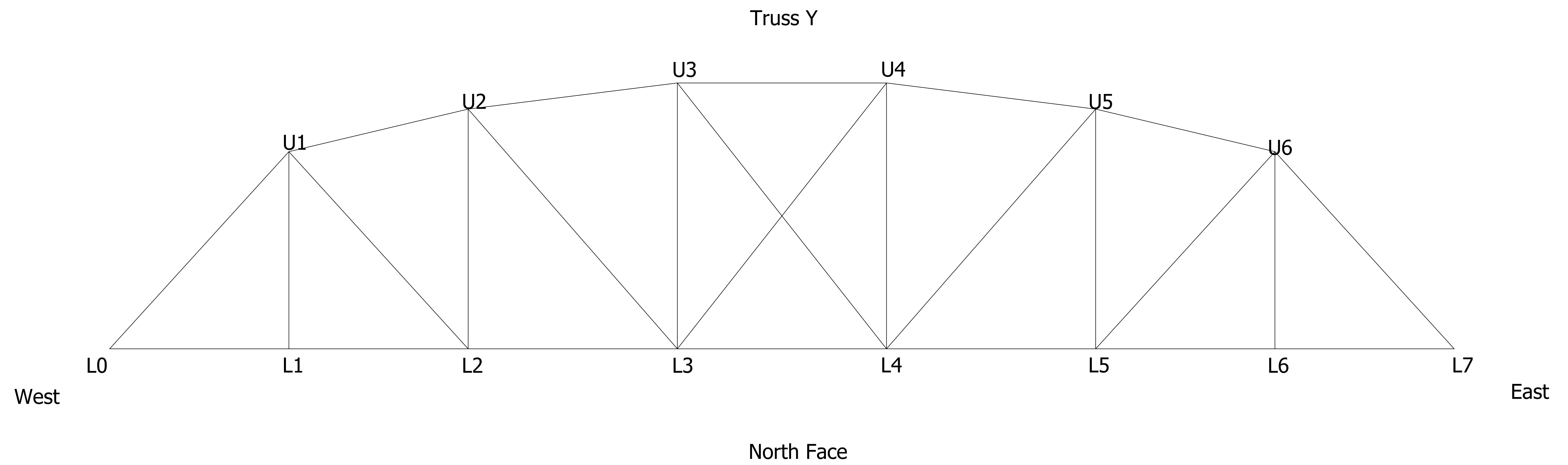
<u>Item Code</u>	<u>Rating</u>
60 – Superstructure	<u>5</u>
92C – Critical Feature Inspection (Fracture Critical Inspection Frequency)	<u>Y24</u>
93 - Critical Feature Inspection Date:	<u>8/30/17</u>

Ratings are based on the information provided in the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nations Bridges.

APPENDIX A

FIGURES





APPENDIX B

PHOTOGRAPHS

Fracture Critical Inspection Report



Photo 1: West Approach Looking East



Photo 2: East Approach Looking West

Fracture Critical Inspection Report



Photo 3: South Face Looking North



Photo 4: North Face Looking South

Fracture Critical Inspection Report



Photo 5: Looking West at Abutment 1



Photo 6: Looking East at Abutment 2

Fracture Critical Inspection Report



Photo 7: Floor System



Photo 8: Aerial View of Truss

Fracture Critical Inspection Report



Photo 9: Southeast End Post - Damaged Lacing Bars



Photo 10: Northwest End Post - Damaged Lacing Bars

Fracture Critical Inspection Report



Photo 11: Looking W along S Truss at Typical Guardrail Connection



Photo 12: Looking East Along North Bridge Rail

Fracture Critical Inspection Report



Photo 13: L1-Y- Floor Beam 7 (from West End) Typical Condition at Bracing and Gusset Plate



Photo 14: L2-Y North Stringer Section Loss 4" x 8" x 1/8" in Web and 4" x 6" x 1/8" in Bottom Flange

Fracture Critical Inspection Report



Photo 15: Concrete Coping Spall 6"x3"x4' Between L2-L3 Y – Note Delamination of Stringer Top Flange



Photo 16: Stringer 1 at Northeast Corner - Note Heavy Rust, Section Loss (1/4" x 3" x 8" in Flange; 1/8" x 6" x 8" in Web), and Debris

Fracture Critical Inspection Report



Photo 17: L3-Y Floor Beam 5 Gusset Plate



Photo 18: L3-Y North Stringer (L3-L2) Heavy Pitting and Section Loss – $\sim \frac{1}{4}'' \times 6'' \times 8''$ in Bottom Flange with a $1 \frac{1}{2}''$ Diameter Hole

Fracture Critical Inspection Report



Photo 19: Heavy Rust, Pitting and Section Loss on North End of FB 5, Gusset Plate and Lateral Bracing. Bracing reduced by 50% along end 24" and Gusset Plate Reduced by 50%-75%.



Photo 20: Northwest end of Floor Beam 5 - Note Gusset Plate Connections Pack Rust up to 1/2"

Fracture Critical Inspection Report



Photo 21: Northeast end of Floor beam 5 - Note Gusset Plate and Bracing Section Loss ~ 50% of end 12"



Photo 22: Looking S at L1-X - Typical Condition at Bracing Connection

Fracture Critical Inspection Report



Photo 23: L1-X Lower Lateral Bracing Gusset Plate Deformation with 1/2" Pack Rust



Photo 24: L2-X at FB6 - Up to 3/4" Pack Rust at Horizontal Gusset Plate at Floor Beam Connection

Fracture Critical Inspection Report



Photo 25: FB7 Horizontal Gusset Plate South End - Moderate Rust, Deep Pitting, Section Loss of $\frac{1}{4}$ " x 3" x 2'



Photo 26: Truss X – West Side of L3U2 – Up to $\frac{1}{4}$ " Pack Rust at Gusset Plate

Fracture Critical Inspection Report



Photo 27 - L3-L4 Y, Looking East, Section Loss 1/16" to 3/4" x 3" x Full Length in Interior Vertical Leg



Photo 28: Truss Y L3U3 2" and 1.5" Holes in Exterior Channel

Fracture Critical Inspection Report



Photo 29: NW Bearing looking West



Photo 30: NW Bearing – Heavy Rust and Section Loss of Gusset Plate, Rivets, etc. Section Loss in Gusset Plate is 1/8" x 6" x 6"

Fracture Critical Inspection Report



Photo 31: NW Bearing Interior Connection Angle. Note Rivet Head Section Loss.



Photo 32: Gusset Plates above NW Bearing - Note Stains, Rust and Deterioration

Fracture Critical Inspection Report



Photo 33: L0-Y Lower Lateral Gusset Plate Section Loss – Approximately 6” of Plate Gone. Viewed from Top



Photo 34: SE Bearing at L0-X

Fracture Critical Inspection Report



Photo 35: SE Bearing - End of Lower Chord L6L7 showing Section Loss in Web at End, Rivets and Gusset Plates. End of Lower Chord Tapers to Paper Thin. Rivets 25% to 50% Section Loss.



Photo 36: NE Bearing - Exterior Gusset Plate Section Loss $\frac{1}{4}$ " x 2" x 8" on Exterior Gusset Plate

Fracture Critical Inspection Report



Photo 37: SW Bearing - Interior Vertical Gusset Plate Section Loss 3/8" x 2" x 12"



Photo 38: SW Bearing - North Face of Interior Gusset Plate Section Loss – 1/8" x 1" x 12" Along Angle.

Fracture Critical Inspection Report



Photo 39: Truss Y - U3 (From East) Pack Rust (Typ.)



Photo 40: West Portal Bracing Showing Minor Impact Damage – Split Paint

Fracture Critical Inspection Report



Photo 41: Upper Chord Connection (Typ.)



Photo 42: Portal Bracing Connection - Note Rust Stain and Minor Pack Rust

APPENDIX C
STRUCTURE INVENTORY
AND
APPRAISAL FORM

Bridge Inspection Report

026-38-03430 A
SR 26
over
SALAMONIE RIVER



Inspection Date: 10/13/2016

Inspected By: Joshua Biller

Inspection Type(s): Routine

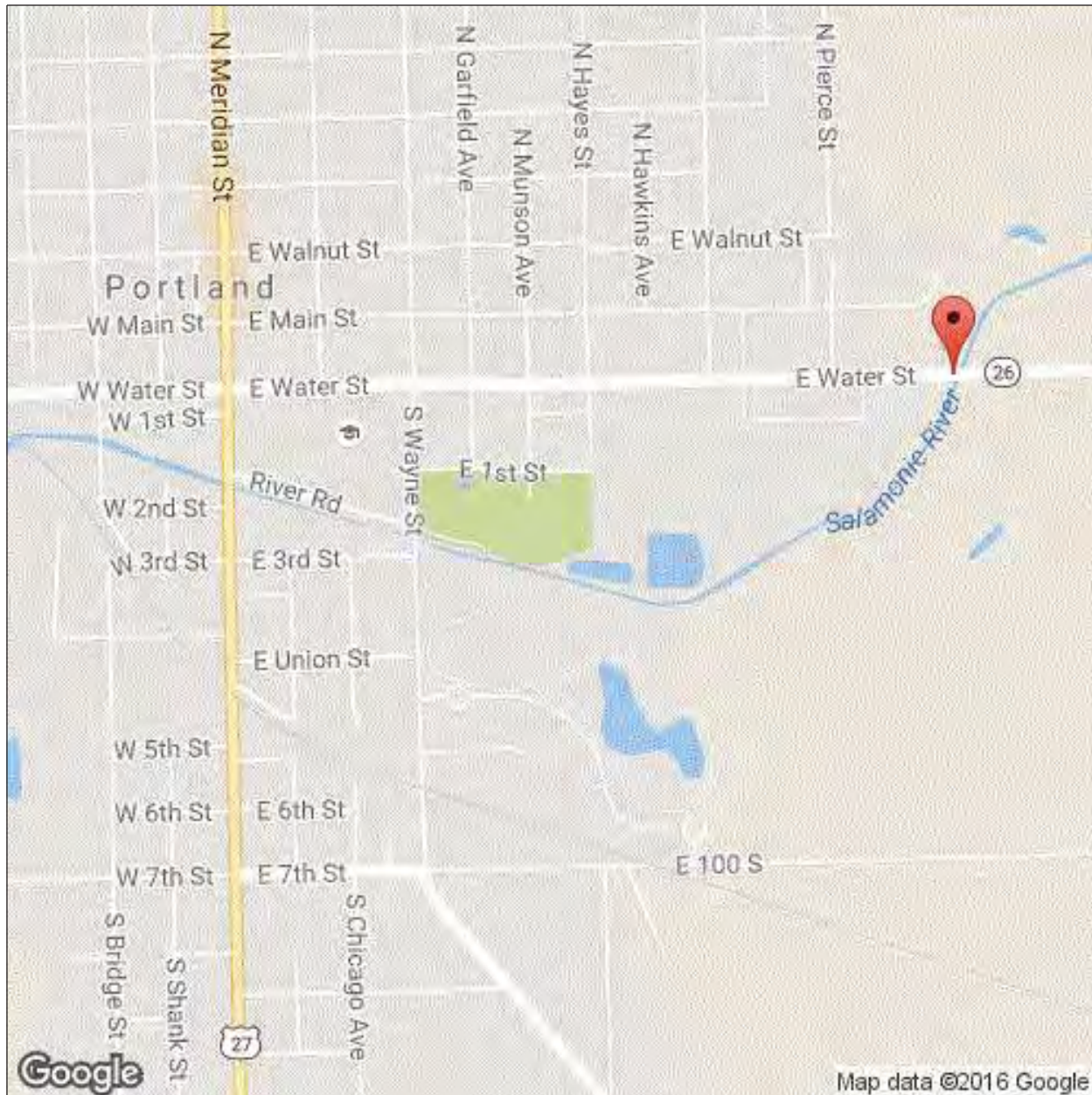
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Inspector: Joshua Biller
Inspection Date: 10/13/2016

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report



Latitude: 40.43255

Longitude: -84.963486

Inspector: Joshua Biller
Inspection Date: 10/13/2016

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

SR 26 over Salamonie River (RP 141+23)

7-panel, Pratt (Camel-back) through-truss. Built in 1941, under contract B-2144. 'A' Rehab (replaced deck - built with 1.5" bridge deck surface) in 1979, B-12069.

Historical Bridge: "Non-Select"

Channel: the Salamonie River flows from north to south under the bridge.

Orientation ---

Abutment #1 is at the West End.

North Truss is the "Y" Truss on the Design Plans - panel points are numbered from west to east, with L0 at the west end.

South Truss is the "X" Truss on the Design Plans - panel points are numbered from east to west, with L0 at the east end.

Floor Beam #1 is at the West end of the deck.

Stringer #1 is at the South edge of the deck, in each panel.

Last Fracture Critical Inspection: conducted on 8-27-2015, using the UB-40.

Programmed Work: *suspended contract* for painting with a RFL date of 08/10/2016, DES # 1383052, Contract B-36498. It was last painted in 2000, under Contract M-24790, (3-coat system, blue, 136.1 tons).

Future Work: scheduled for replacement in 2021 (B-39818; Des. 1600828); Letting Date of 09/02/2020;

Roadway: new HMA on west end; chip & seal over HMA on east end; Good Condition;

Guardrail: twin-tube aluminum system on all four corners; Fair Condition;

West Approach: grooves from milling machine on surface at west end; chipping along 1A joint; wide, irregular crack along center line, with spall near 1A joint; spall on curb in SE corner;

West Joint: S-S joint; seal is intact; filled with debris;

East Joint: BS seal; adjacent concrete has lots of chipping; debris impaction of seal; ineffective;

Inspector: Joshua Biller
Inspection Date: 10/13/2016

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

East Approach: similar to west approach;

****** Select Notes from 2016 Routine Inspection ******

West portal has collision damage above EBL. Used binoculars to look at area from deck. No cracks noted. Channel is bent inward, with yellow paint noted on member; peeling paint on back side of bend.

****** Notes from 2015 Routine Inspection ******

Stringers:

Section loss to flanges & webs of outside stringers in the end panels - esp. heavy @ corners - bottom flange SW has a 1" wide area of section loss - remaining steel tapers down to paper thin @ edge; holes thru webs of outside stringers @ corners: 3"x3"- SW & 1"x10"- SE; minor pitting & section loss to N. stringer in bay #2 from the East; Stringer #2 from the north on E. side of floor beam #4 - top flange damaged/torn down @ coped area (~2" tear).

Possible crack at the upper cope, at the east end of the north coping stringer, on the west side of the Floor Beam at L1, north truss, under the curb line. There is rust staining on the stringer that may indicate a crack, that may be +/- 2" long. Will need to use the UB-40 to verify this. (This is NOT a Critical Finding).

Floor Beams:

Bottom flange has 1/4" section loss in bottom flange thickness (typical 1 1/8" thick now 7/8" for a 2" wide x 3" long area along the edge of the gusset plate - L3 of N. truss; Corrosion "hot spots" on top of bottom flange of floor beam #4 - 1/8" max. depth @ 1"x1" & 2"x2" areas on W. side, near the S. truss; Floor beam # 5 - moderate section loss @ bottom flange & web pitting near N. truss, minor section loss at edge of gusset @ S. truss; Floor beams #2 & 3 near N. truss - bottom flanges have areas of pitting (1/8" max. depth).

Verticals:

U4L4 of North truss - corrosion holes through outside channel ~ level with the deck - 1" & 2" diameter;

Inspector: Joshua Biller
Inspection Date: 10/13/2016

Asset Name: 026-38-03430 A
Facility Carried: SR 26

Bridge Inspection Report

U2L2 of South truss - minor corrosion & pitting @ railing connection, 1 minor collision scrape - NW corner ~18" above railing;

U3L3 & U5L5 of South truss - lacing has minor corrosion on lower half of verticals;

U4L4 of South truss, U3L3 & U4L4 of North truss - minor pack rust between sway frame angles & verticals.

Diagonals:

NW & SE end posts have corrosion, pitting & minor section loss on the inside face of the outside channel sections.

U1L2 of North truss - 3 rivets have heavy corrosion & section loss bottom end on E. face;

U3L4 of North truss - outside flange has minor hot spots of corrosion on the bottom side;

U1L2 of South truss - hot spots of corrosion in the flange & web near lower chord & behind the railing - minor section loss heavier near lower chord;

U3L4 of South truss - 3 rivets have heavy corrosion & section loss on the outside flange;

U4L3 of South truss - ~4' long area of minor mill scale rusting near the bottom on the inside face of the outside flange.

Lower Chords:

Corrosion & section loss to lower chord splice plates (1/4" max. edge loss) - N. truss near L4 and S. truss near L2 & L4;

Pitting areas with minor section loss painted over are typical;

L0L1 of North truss - minor corrosion @ E. end top of web & flanges;

L1L2 of North truss - some pitting 1/8" deep, 1 small spot with corrosion inside flange near L2;

L2L3 of North truss- few small spots of pitting & section loss up to 1/8" deep on inside faces @ L3;

Inspector: Joshua Biller
Inspection Date: 10/13/2016

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L6L7 of North truss - corrosion, pitting & minor section loss on top, below the NW end post;

L0L1 of South truss - a few hot spots of corrosion with minor section loss;

L2L3 of South truss - 3" diameter pitting area on the inside flange @ L3 - 1/8" deep section loss;

L3L4 of South truss - pitting & minor section loss (1/8" max. depth) - inside faces of flanges on top;

L6L7 of South truss - heavy corrosion below SE end post - flange up to 1/8" deep loss x1"x16" on inside flange, 1/4" loss x 2" dia. outside flange, 1/8"x1"x24" area near web.

Upper Chords and End Post:

Steel Lacings have corrosion & major section loss or are missing @ NW & SE end posts, (both L0-U1's), over the lower +- 8-feet.

All other Upper Chord Members looked to be in good condition, from the deck.

Gusset Plates:

Vertical Gusset Plates - connecting truss members:

All plates 3/8" thick, unless noted otherwise;

At L1 and L6, there are two individual plates, one on each side of the vertical;

L0 of North truss - fairly heavy corrosion & section loss near end of lower chord;

L2 of North truss - slight bowing of outside plate W. of vertical, 1/4" pack rust @ U2L2, pitting outside face over U2L2 near top of plate;

L3 of North truss - pitting & section loss painted over on inside plate W. of vertical;

L4 of North truss - minor outward bow of inside & outside plates on W.

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side of vertical, pitting areas;

L5 of North truss - pitting & section loss 1/16" x 2" diameter @ end of U6L5 on the inside face of the inside plate W. of the vertical, pack rust bows outside plate out ~1/4" E. of vertical;

L6 of North truss - plate E. of vertical has 2" diameter hole (section loss), below centerline of rivets (see picture), 1/8" deep x 1" diameter pitting area between horizontal & vertical rivet lines;

L7 of North truss - heavy corrosion, minor section loss & pack rust near end of lower chord;

L0 of South truss - 15/32" thick - inside & outside plates, hot spots of corrosion @ SE end post, section loss areas - both plates, inside faces underneath L0-L1 member, near the east end of the L0-L1 rivets. Section loss is +/- 60% over an area that is 3" high X 10" long, (this is NOT a Critical Finding);

L1 of South truss - minor corrosion @ edges;

L2 of South truss - minor outward bow of outside plate E. of vertical;

L3 of South truss - pitting & section loss @ end of U2L3 - W. of vertical;

L4 of South truss - pitting & minor section loss, minor corrosion & some pack rust between gusset plate & U5L4;

L5 of South truss - minor pitting, outside plate W. of vertical - edge bows out 1/4" due to pack rust;

L6 of South truss - pitting painted over W. of vertical;

L7 of South truss - minor pitting.

Connection plates:

There is 2- 1"x1" hole in the horizontal base plate in the NW & SW corner, at the corner of the railing post connection - seen by standing on top of the bridge, leaning over the railing & looking down.

Horizontal connection plates: moderate corrosion & section loss- esp. @ SE end post; pack rust causing some distortion between floor beams & gussets @ L2 of N. truss, L5 of S. truss and at both ends of floor beam #2 (L6 of N. truss & L1 of S. truss).

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Lacings:

Steel Lacings have corrosion & fairly heavy section loss or are missing @ NW & SE end posts.

Rivets:

Heavy corrosion of rivets @ gusset plate in SE corner; other scattered rivets have some section loss.

Collision Damage:

Very minor impact damage to the East Portal.

Bearings:

The concrete support block for the east end floor beam has spalled in the support area. Steel Bearings are rusted, but OK.

Maintenance:

There are trees that protrude through the North Truss and over the north shoulder area, over the bridge deck. The leaves from these trees fall off and fill the lower truss chords all winter long. These trees should be cut way back from the truss. The truss needs to be cleaned out at least twice a year in order to prevent corrosion, so as to keep this bridge in service for many more years.

*** Gusset Plate Inspection on 09/13/2012 by RQAW ***

Jim Lesh of RQAW, Load Rated the Gusset Plates on 09/25/2012, after conducting a field inspection. Jeremy Hunter checked the calculations on 10/02/2012.

The RQAW Inspection Notes included the following:

North Truss -- there is bowing of the L4-L5 gusset plates. There is pack rust that has developed between the members and the gusset plates plate which has the caused gusset plate to warp. This warping will put tensile

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stress into the rivets which decreases their shear capacity.

South Truss -- there is warping of the gusset plate at L-2.

From the analysis, it is noted that: the rows of rivets affected by the warping and prying action were removed from the gusset capacity checks for the corresponding members. These capacity reductions did not result in a governing load rating for this bridge.

The full Gusset Plate analysis report has been attached into "BIAS".

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IDENTIFICATION

(1) STATE CODE:	185 - Indiana	(12) BASE HIGHWAY NETWORK:	0
(8) STRUCTURE:	007040	(13A) INVENTORY ROUTE:	
(5 A-B-C-D-E) INV. ROUTE:	1 - 3 - 1 - 00026 - 0	(13B) SUBROUTE NUMBER:	
(2) HIGHWAY AGENCY DISTRICT:	03 - Greenfield	(16) LATITUDE:	40.43255
(3) COUNTY CODE:	038 - JAY	(17) LONGITUDE:	-84.963486
(4) PLACE CODE:	61236 - PORTLAND	(98) BORDER	
(6) FEATURES INTERSECTED:	SALAMONIE RIVER	A) STATE NAME:	
(7) FACILITY CARRIED:	SR 26	B) PERCENT	%
(9) LOCATION:	00.78 E US 27	(99) BORDER BRIDGE STRUCT. NO:	
(11) MILEPOINT:	0014.300		

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN:		(45) NUMBER OF SPANS IN MAIN 001	
		UNIT:	
A) KIND OF MATERIAL/DESIGN:	3 - Steel	(46) NUMBER OF APPROACH SPANS:	0000
B) TYPE OF DESIGN/CONSTR:	10 - Truss - Thru	(107) DECK STRUCTURE TYPE:	1 - Concrete Cast-in-Place
(44) STRUCTURE TYPE, APPROACH SPANS:		(108) WEARING SURFACE/PROT SYS:	
A) KIND OF MATERIAL/DESIGN:	0 - Other	A) WEARING SURFACE:	3 - Latex Concrete or similar additive
B) TYPE OF DESIGN/CONSTR:	00 - Other	B) DECK MEMBRANE:	0 - None
		C) DECK PROTECTION:	0 - None

AGE OF SERVICE

(27) YEAR BUILT:	1941	(28) LANES:	
(106) YEAR RECONSTRUCTED:	1979	A) ON BRIDGE:	02
(42) TYPE OF SERVICE:		B) UNDER BRIDGE:	00
A) ON BRIDGE:	1 - Highway	(29) AVERAGE DAILY TRAFFIC:	002541
B) UNDER BRIDGE:	5 - Waterway	(30) YEAR OF AVERAGE DAILY TRAFFIC:	2014
		(109) AVERAGE DAILY TRUCK TRAFFIC:	16 %
		(19) BYPASS DETOUR LENGTH:	003 MI

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GEOMETRIC DATA

(48) LENGTH OF MAX SPAN:	0150.0	FT	(35) STRUCTURE FLARED:	0 - No flare
(49) STRUCTURE LENGTH:	00154.7	FT	(10) INV RTE, MIN VERT CLEARANCE:	15.00 FT
(50) CURB/SIDEWALK WIDTHS:			(47) TOT HORIZ CLEARANCE:	028.0 FT
A) LEFT	00.5	FT	(53) VERT CLEAR OVER BR RDWY:	14.92 FT
B) RIGHT:	00.5	FT	(54) MIN VERTICAL UNDERCLEARANCE:	
(51) BRDG RDWY WIDTH CURB-TO-CURB:	028.0	FT	A) REFERENCE FEATURE:	N
(52) DECK WIDTH, OUT-TO-OUT:	029.0	FT	B) MIN VERT UNDERCLEAR:	00.00 FT
(32) APPROACH ROADWAY	028.0	FT	(55) LATERAL UNDERCLEARANCE RIGHT:	
(33) BRIDGE MEDIAN:	0 - No median		A) REFERENCE FEATURE:	N
(34) SKEW:	00	DEG	B) MIN LATERAL UNDERCLEAR:	000.0 FT
			(56) MIN LATERAL UNDERCLEAR ON LEFT:	000.0 FT

INSPECTIONS

(90) INSPECTION DATE:	10/13/2016	(91) DESIGNATED INSPECTION FREQUENCY:	24 MONTHS
(92) CRITICAL FEATURE INSPECTION:		(93) CRITICAL FEATURE INSPECTION DATE:	
A) FRACTURE CRITICAL REQUIRED/FREQUENCY:	Y 24	A) FRACTURE CRITICAL DATE:	08/27/2015
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY:	N	B) UNDERWATER INSP DATE:	
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY:	N	C) OTHER SPECIAL INSP DATE:	

CONDITION

(58) DECK:	5 - Fair Condition (minor section loss)	(60) SUBSTRUCTURE:	5 - Fair Condition (minor section loss)
(58.01) WEARING SURFACE:	5 - Fair Condition	(61) CHANNEL/CHANNEL PROTECTION:	5 - Bank eroded.. major damage
(59) SUPERSTRUCTURE:	5 - Fair Condition (minor section loss)	(62) CULVERTS:	N - Not Applicable

CONDITION COMMENTS

(58) DECK: 5 - Fair Condition (minor section loss)

Comments:

Deck (underside) has corrosion to metal (SIP) forms - several areas of heavy corrosion at the corners, especially at the NE end of the deck, and along the edges of the Floor Beam upper flanges, near the copings.

Concrete Copings have minor spalls, with narrow vertical & horizontal cracks.

Steel bridge railing has corrosion at connections & section loss holes - SE & NW; minor collision rubs & scratches on both railings; 2 railing bolts sheared off on the back side of the first vertical @ NE corner

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(58.01) WEARING SURFACE: 5 - Fair Condition

Comments:

Wearing surface has numerous narrow transverse cracks over each interior Floor Beam. Usually two or three parallel transverse cracks with random map cracking propagating out. A few hairline longitudinal cracks at the west end of the deck. One concrete patch in the WBL at east end. Three concrete patches in the EBL, near mid-span. A drain grate along the north curb line has been replaced with a steel plate.

(59) SUPERSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:

See the 08/27/2015 Fracture Critical Inspection Report for more details. Inspection used Standard No. 1522 to identify the truss panel points (labeled left-to-right from roadway side of each truss). L0-X is in SE corner of bridge; L0-Y is in NW corner of bridge. South is "X" truss, north is "Y" truss, Floor Beam 1 is on west end, Floor Beam 8 is on east end, Stringer1 is on south side, and Stringer10 is on north side. Deterioration (loss of lacing on end posts, corrosion of gusset plates) in SE & NW corners are of particular concern. Noticeable vertical and lateral movement under live loading, with booms/bangs heard at ends of deck (likely from loose joints and/or floor beams tapping support blocks).

See the Executive Summary for general comments/notes on superstructure members.

(60) SUBSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:

Breastwalls have wide vertical and horizontal cracks; delaminations & spalls in re-pointed areas, both E & W Abutments, worse at the East Abutment, due to water leakage through the BS joint.

Concrete Caps and Backwalls have minor vertical cracks.

Erosion at corners - concrete turnout/paved side ditch undermined, cracked & settled @ NE & SE corners; ponding at the west abutment; fairly deep erosion gulleys on both banks below bridge.

(61) CHANNEL/CHANNEL 5 - Bank eroded.. major damage PROTECTION

Comments:

Channel has very heavy bank erosion, many downed trees and exposed roots.

Evidence of highwater above the lower chord - see pictures (8/9/11).

No rip rap or other channel protection at or nearby the bridge. - No evidence of channel scour.

(62) CULVERTS: N - Not Applicable

Comments:

LOAD RATING AND POSTING

(31) DESIGN LOAD:	4 - H 20	(66) INVENTORY RATING:	29
(70) BRIDGE POSTING	5 - Equal to or above legal loads	(65) INVENTORY RATING METHOD: 1 - Load Factor (LF)	
(41) STRUCTURE OPEN/POSTED/CLOSED:	A - Open	(66B) INVENTORY RATING (H):	18
(64) OPERATING RATING:	49	(66D) DATE POSTED/CLOSED:	
(63) OPERATING RATING METHOD:	1 - Load Factor (LF)		

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APPRAISAL

SUFFICIENCY RATING:	64.7	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	0	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	5	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	4	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	0

(71) WATERWAY ADEQUACY: **9 - Bridge Above Flood Water Elevations**

Comments:

~4' max. HW to E. approach PG.

Evidence of highwater above the lower chord - see pictures (8/9/11).

(72) APPROACH ROADWAY ALIGNMENT: **8 - Equal to present desirable criteria**

Comments:

Good. SR-26 is straight and flat on both sides of the bridge.

Approach slabs have wide longitudinal cracks along center construction joint.

Approach guardrail is substandard - aluminum; leaning outward.

Approach pavement has wide random cracks & minor rutting; wedges replaced in 2000.

West Shoulders failing.

Narrow shoulders all sides. Little room to park inspection vehicles.

(113) SCOUR CRITICAL BRIDGES: **8 - Stable for scour conditions**

Comments:

Spread Footings, ON Piles, at both Abutments.

Bottom of Footing elevation = 75.77' at West Abutment.

Bottom of Footing elevation = 75.02' at East Abutment.

The 1941 Flow Line elevation = 78.80'

The 1933 High Water elevation = 94.80'

Soil is sand and clay over gravel

CLASSIFICATION

(20) TOLL:	3 - On Free Road	(21) MAINT. RESPONSIBILITY:	01 - State Highway Agency
(22) OWNER:	01 - State Highway Agency	(26) FUNCTIONAL CLASS OF INVENTORY RTE:	16 - Urban - Minor Arterial
(37) HISTORICAL SIGNIFICANCE:	2 - Eligible for National Register	(100) STRAHNET HIGHWAY:	Not a STRAHNET route
(101) PARALLEL STRUCTURE:	N - No parallel structure	(102) DIRECTION OF TRAFFIC:	2-way traffic
(103) TEMPORARY STRUCTURE:		(104) HIGHWAY SYSTEM OF INVENTORY ROUTE:	0 - Structure/Route is NOT on NHS
(105) FEDERAL LANDS HIGHWAYS:	0-Not Applicable	(110) DESIGNATED NATIONAL NETWORK:	Inventory route on National Truck Network
(112) NBIS BRIDGE LENGTH:	Yes		

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NAVIGATION DATA

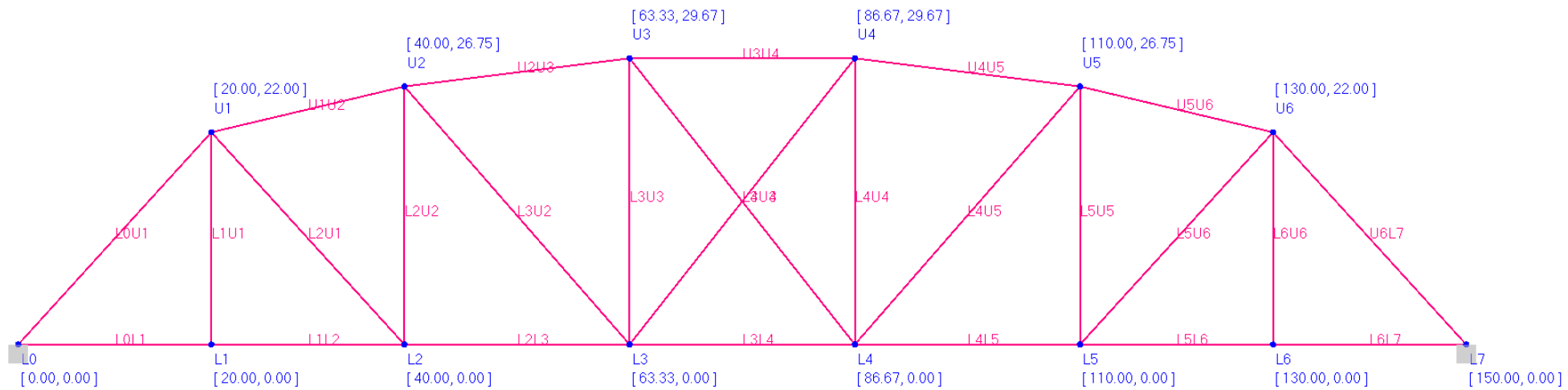
(38) NAVIGATION CONTROL:	0 - No navigation control on waterway (bridge permit not required)	(39) NAVIGATION VERTICAL CLEAR: 000.0 FT
(111) PIER OR ABUTMENT PROTECTION:		(116) MINIMUM NAVIGATION VERT. CLEARANCE, VERT. LIFT BRIDGE: FT
		(40) NAV HORIZONTAL CLEARANCE: 0000.0 FT

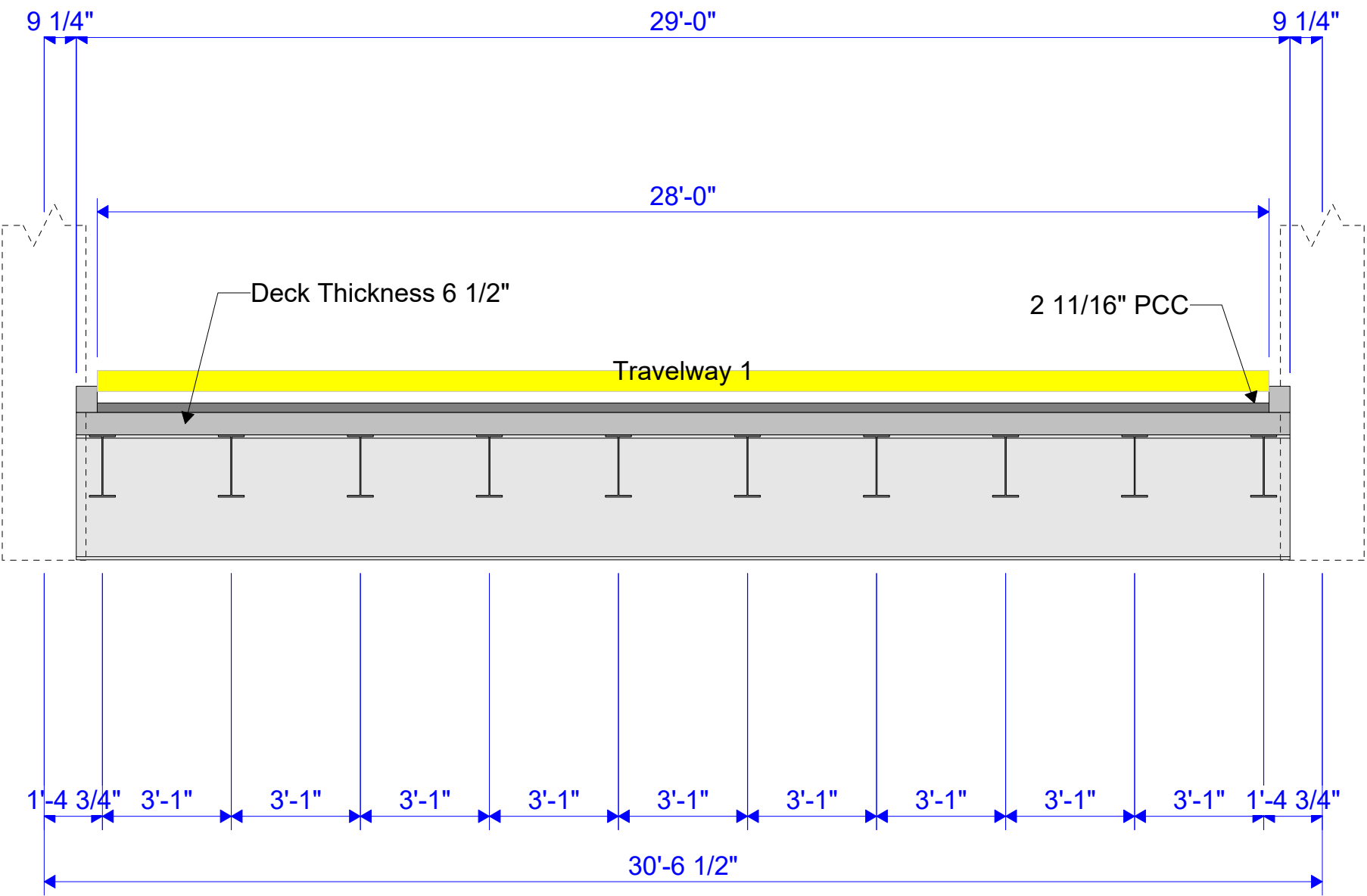
PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK:	38 - Other Structural Work	(95) ROADWAY IMPROVEMENT COST: \$ 000000
(75B) WORK DONE BY:	1 - Work to be done by contract	(96) TOTAL PROJECT COST: \$ 000116
(76) LENGTH OF IMPROVEMENT:	000154. FT	(97) YR OF IMPROVEMENT COST EST: 2015
	7	(114) FUTURE AVG DAILY TRAFFIC: 004600
(94) BRIDGE IMPROVEMENT COST:	\$ 000116	(115) YR OF FUTURE ADT: 2030

Appendix F

Load Rating





Notes:
* The truss members are not drawn to scale.

Bridge ID :026-38-03430AGusset-Det
 Bridge : NBI=007040 (STT)
 StructDef : 7PanelSteelTruss
 User : Bridge
 Date : Thursday, March 22, 2018 16:35:43
 File : RatingResults.XML
 Analysis Preference Setting : None

NBI Structure ID :007040
 Bridge Alt :
 Member : North

Overall Load Factor Rating Summary

Live Load	Live Load Type	Inv Element	Inv RF	Inv Capacity (Ton)	Opr Element	Opr RF	Opr Capacity (Ton)	Legal Opr Element	Legal Opr RF	Legal Opr Capacity (Ton)	Permit Inv Element	Permit Inv RF	Permit Inv Capacity (Ton)	Permit Opr Element	Permit Opr RF	Permit Opr Capacity (Ton)	Impact	Lane
H 20-44 - Lane	Design Lane	L6U6	0.885	17.70	L6U6	1.478	29.56										As Requested	As Requested
H 20-44 - Lane	Design Lane	L6U6	0.885	17.70	L6U6	1.478	29.56										With Impact	Multi-Lane
H 20-44 - Truck	Design Truck	L6U6	0.998	19.96	L6U6	1.667	33.34										As Requested	As Requested
H 20-44 - Truck	Design Truck	L6U6	0.998	19.96	L6U6	1.667	33.34										With Impact	Multi-Lane
HS 20-44 - Lane	Design Lane	L6U6	0.885	31.86	L6U6	1.478	53.20										As Requested	As Requested
HS 20-44 - Lane	Design Lane	L6U6	0.885	31.86	L6U6	1.478	53.20										With Impact	Multi-Lane
HS 20-44 - Truck	Design Truck	L6U6	0.780	28.09	L6U6	1.303	46.91										As Requested	As Requested
HS 20-44 - Truck	Design Truck	L6U6	0.780	28.09	L6U6	1.303	46.91										With Impact	Multi-Lane

Live Load: H 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force Comp. (kip)	IF	Tens. (kip)	IF	Capacity Comp. (kip)	Tens. (kip)	Adj Veh Demand Comp. (kip)	Tens. (kip)	One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
L0L1	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L1L2	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L2L3	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L3L4	Lower-Chord	257.31			76.36	1.18		633.27				1.262	1.208	2.018			
L4L5	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L5L6	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L6L7	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
U1U2	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
U2U3	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U3U4	Upper-Chord	-268.72	-80.48	1.18			-672.28					1.262	1.239	2.070			
U4U5	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U5U6	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
L1U1	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			
L2U2	Vertical	-17.65	-21.17	1.23	22.76	1.28	-223.00	223.00				1.262	2.813	4.698			
L3U3	Vertical	19.29	-6.49	1.26	17.01	1.24	-202.00	202.00				1.262	3.052	5.098			
L4U4	Vertical	19.29	-6.49	1.26	17.01	1.24	-223.00	223.00				1.262	3.415	5.703			
L5U5	Vertical	-17.65	-21.17	1.23	22.76	1.28	-223.00	222.75				1.262	2.813	4.698			
L6U6	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																
L0U1	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829		
U6L7	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829		
L2U1	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611		
L3U2	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.510	2.522		
L4U3	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	148.00				1.262	2.400	4.008		
L3U4	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.400	4.008		
L4U5	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.510	2.522		
L5U6	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611		

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: H 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	167.49			30.84	1.18		442.53				1.262	2.251	3.760			
L1L2	Lower-Chord	167.49			30.84	1.18		442.53				1.262	2.251	3.760			
L2L3	Lower-Chord	233.43			42.75	1.18		591.69				1.262	2.082	3.478			
L3L4	Lower-Chord	257.31			41.58	1.18		633.27				1.262	2.219	3.706			
L4L5	Lower-Chord	233.43			42.75	1.18		591.69				1.262	2.082	3.478			
L5L6	Lower-Chord	167.49			30.84	1.18		442.53				1.262	2.251	3.760			
L6L7	Lower-Chord	167.49			30.84	1.18		442.53				1.262	2.251	3.760			
U1U2	Upper-Chord	-239.93	-43.94	1.18			-682.00					1.262	2.602	4.345			
U2U3	Upper-Chord	-265.06	-48.12	1.18			-671.60					1.262	2.099	3.505			
U3U4	Upper-Chord	-268.72	-43.82	1.18			-672.28					1.262	2.276	3.801			
U4U5	Upper-Chord	-265.06	-48.12	1.18			-671.60					1.262	2.099	3.505			
U5U6	Upper-Chord	-239.93	-43.94	1.18			-682.00					1.262	2.602	4.345			
L1U1	Vertical	49.01			34.40	1.30		186.00				1.262	0.998	1.667			
L2U2	Vertical	-17.65	-14.42	1.23	19.61	1.28	-223.00	223.00				1.262	3.500	5.845			
L3U3	Vertical	19.29	-5.12	1.26	12.61	1.24	-202.00	202.00				1.262	4.118	6.877			
L4U4	Vertical	19.29	-5.12	1.26	12.61	1.24	-223.00	223.00				1.262	4.607	7.693			
L5U5	Vertical	-17.65	-14.42	1.23	19.61	1.28	-223.00	222.75				1.262	3.496	5.839			
L6U6	Vertical	49.01			34.40	1.30		186.00				1.262	0.998	1.667			
L0U1	Diagonal	-248.99	-45.84	1.18			-631.00					1.262	2.070	3.457			
U6L7	Diagonal	-248.99	-45.84	1.18			-631.00					1.262	2.070	3.457			
L2U1	Diagonal	98.03	-12.25	1.30	24.91	1.20	-162.07	260.00				1.262	1.616	2.699			
L3U2	Diagonal	45.01	-17.97	1.28	21.76	1.22	-202.53	222.75				1.262	2.253	3.762			
L4U3	Diagonal	9.23	-8.54	1.25	12.00	1.25	-81.56	148.00				1.262	3.099	5.175			
L3U4	Diagonal	9.23	-8.54	1.25	12.00	1.25	-81.56	159.39				1.262	3.099	5.175			
L4U5	Diagonal	45.01	-17.97	1.28	21.76	1.22	-202.53	222.75				1.262	2.253	3.762			
L5U6	Diagonal	98.03	-12.25	1.30	24.91	1.20	-162.07	260.00				1.262	1.616	2.699			

Support	LL Reaction (kip)	I.F.

Support	LL Reaction (kip)	I.F.
L0	39.25	1.18
L7	39.25	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L1L2	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L2L3	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L3L4	Lower-Chord	257.31			76.36	1.18		633.27				1.262	1.208	2.018			
L4L5	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L5L6	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L6L7	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
U1U2	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
U2U3	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U3U4	Upper-Chord	-268.72	-80.48	1.18			-672.28					1.262	1.239	2.070			
U4U5	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U5U6	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
L1U1	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			
L2U2	Vertical	-17.65	-21.17	1.23	22.76	1.28	-223.00	223.00				1.262	2.813	4.698			
L3U3	Vertical	19.29	-6.49	1.26	17.01	1.24	-202.00	202.00				1.262	3.052	5.098			
L4U4	Vertical	19.29	-6.49	1.26	17.01	1.24	-223.00	223.00				1.262	3.415	5.703			
L5U5	Vertical	-17.65	-21.17	1.23	22.76	1.28	-223.00	222.75				1.262	2.813	4.698			
L6U6	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			
L0U1	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829			
U6L7	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829			
L2U1	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611			
L3U2	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.510	2.522			
L4U3	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	148.00				1.262	2.400	4.008			
L3U4	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.400	4.008			
L4U5	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.510	2.522			
L5U6	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611			

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00
 Adjacent Vehicle LL Factor = 0.00
Inventory:
 A1 = 1.30, A2 = 2.17
Operating:
 A1 = 1.30, A2 = 1.30
 Note: Rating factor is outputted as 99.00 when it is greater than 99

Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	167.49			52.65	1.18		442.53				1.262	1.318	2.202			
L1L2	Lower-Chord	167.49			52.65	1.18		442.53				1.262	1.318	2.202			
L2L3	Lower-Chord	233.43			72.25	1.18		591.69				1.262	1.232	2.057			
L3L4	Lower-Chord	257.31			74.22	1.18		633.27				1.262	1.243	2.076			
L4L5	Lower-Chord	233.43			72.25	1.18		591.69				1.262	1.232	2.057			
L5L6	Lower-Chord	167.49			52.65	1.18		442.53				1.262	1.318	2.202			
L6L7	Lower-Chord	167.49			52.65	1.18		442.53				1.262	1.318	2.202			
U1U2	Upper-Chord	-239.93	-74.26	1.18			-682.00					1.262	1.539	2.570			
U2U3	Upper-Chord	-265.06	-80.88	1.18			-671.60					1.262	1.249	2.085			
U3U4	Upper-Chord	-268.72	-78.22	1.18			-672.28					1.262	1.275	2.129			
U4U5	Upper-Chord	-265.06	-80.88	1.18			-671.60					1.262	1.249	2.085			
U5U6	Upper-Chord	-239.93	-74.26	1.18			-682.00					1.262	1.539	2.570			
L1U1	Vertical	49.01			44.00	1.30		186.00				1.262	0.780	1.303			
L2U2	Vertical	-17.65	-23.94	1.23	29.10	1.28	-223.00	223.00				1.262	2.359	3.939			
L3U3	Vertical	19.29	-8.23	1.26	20.24	1.24	-202.00	202.00				1.262	2.564	4.283			
L4U4	Vertical	19.29	-8.23	1.26	20.24	1.24	-223.00	223.00				1.262	2.869	4.791			
L5U5	Vertical	-17.65	-23.94	1.23	29.10	1.28	-223.00	222.75				1.262	2.356	3.935			
L6U6	Vertical	49.01			44.00	1.30		186.00				1.262	0.780	1.303			
L0U1	Diagonal	-248.99	-78.28	1.18			-631.00					1.262	1.212	2.025			
U6L7	Diagonal	-248.99	-78.28	1.18			-631.00					1.262	1.212	2.025			
L2U1	Diagonal	98.03	-14.82	1.30	42.11	1.20	-162.07	260.00				1.262	0.956	1.597			
L3U2	Diagonal	45.01	-26.67	1.28	36.11	1.22	-202.53	222.75				1.262	1.357	2.267			
L4U3	Diagonal	9.23	-13.71	1.25	19.27	1.25	-81.56	148.00				1.262	1.930	3.223			
L3U4	Diagonal	9.23	-13.71	1.25	19.27	1.25	-81.56	159.39				1.262	1.930	3.223			
L4U5	Diagonal	45.01	-26.67	1.28	36.11	1.22	-202.53	222.75				1.262	1.357	2.267			
L5U6	Diagonal	98.03	-14.82	1.30	42.11	1.20	-162.07	260.00				1.262	0.956	1.597			

Support	LL Reaction (kip)	I.F.
L0	67.52	1.18
L7	67.52	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Bridge ID :026-38-03430AGusset-Det
 Bridge : NBI=007040 (STT)
 StructDef : 7PanelSteelTruss
 User : Bridge
 Date : Thursday, March 22, 2018 16:35:46
 File : RatingResults.XML
 Analysis Preference Setting : None

NBI Structure ID :007040
 Bridge Alt :
 Member : South

Overall Load Factor Rating Summary

Live Load	Live Load Type	Inv Element	Inv RF	Inv Capacity (Ton)	Opr Element	Opr RF	Opr Capacity (Ton)	Legal Opr Element	Legal Opr RF	Legal Opr Capacity (Ton)	Permit Inv Element	Permit Inv RF	Permit Inv Capacity (Ton)	Permit Opr Element	Permit Opr RF	Permit Opr Capacity (Ton)	Impact	Lane
H 20-44 - Lane	Design Lane	L6L7	0.809	16.19	L6L7	1.351	27.03										As Requested	As Requested
H 20-44 - Lane	Design Lane	L6L7	0.809	16.19	L6L7	1.351	27.03										With Impact	Multi-Lane
H 20-44 - Truck	Design Truck	L6U6	0.998	19.96	L6U6	1.667	33.34										As Requested	As Requested
H 20-44 - Truck	Design Truck	L6U6	0.998	19.96	L6U6	1.667	33.34										With Impact	Multi-Lane
HS 20-44 - Lane	Design Lane	L6L7	0.809	29.13	L6L7	1.351	48.65										As Requested	As Requested
HS 20-44 - Lane	Design Lane	L6L7	0.809	29.13	L6L7	1.351	48.65										With Impact	Multi-Lane
HS 20-44 - Truck	Design Truck	L6U6	0.780	28.09	L6U6	1.303	46.91										As Requested	As Requested
HS 20-44 - Truck	Design Truck	L6U6	0.780	28.09	L6U6	1.303	46.91										With Impact	Multi-Lane

Live Load: H 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force Comp. (kip)	IF	Tens. (kip)	IF	Capacity Comp. (kip)	Tens. (kip)	Adj Veh Demand Comp. (kip)	Tens. (kip)	One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
L0L1	Lower-Chord	167.49			52.00	1.18		398.00				1.262	1.071	1.788			
L1L2	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L2L3	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L3L4	Lower-Chord	257.31			76.36	1.18		633.27				1.262	1.208	2.018			
L4L5	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L5L6	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L6L7	Lower-Chord	167.49			52.00	1.18		354.00				1.262	0.809	1.351			
U1U2	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
U2U3	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U3U4	Upper-Chord	-268.72	-80.48	1.18			-672.28					1.262	1.239	2.070			
U4U5	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U5U6	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
L1U1	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			
L2U2	Vertical	-17.65	-21.17	1.23	22.76	1.28	-202.00	202.00				1.262	2.518	4.205			
L3U3	Vertical	19.29	-6.49	1.26	17.01	1.24	-217.41	219.78				1.262	3.359	5.610			
L4U4	Vertical	19.29	-6.49	1.26	17.01	1.24	-223.00	223.00				1.262	3.415	5.703			
L5U5	Vertical	-17.65	-21.17	1.23	22.76	1.28	-223.00	219.78				1.262	2.813	4.698			
L6U6	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																
L0U1	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829		
U6L7	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829		
L2U1	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611		
L3U2	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.483	2.476		
L4U3	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	148.00				1.262	2.400	4.008		
L3U4	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.400	4.008		
L4U5	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.483	2.476		
L5U6	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611		

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: H 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	167.49			30.84	1.18		398.00				1.262	1.805	3.015			
L1L2	Lower-Chord	167.49			30.84	1.18		442.53				1.262	2.251	3.760			
L2L3	Lower-Chord	233.43			42.75	1.18		591.69				1.262	2.082	3.478			
L3L4	Lower-Chord	257.31			41.58	1.18		633.27				1.262	2.219	3.706			
L4L5	Lower-Chord	233.43			42.75	1.18		591.69				1.262	2.082	3.478			
L5L6	Lower-Chord	167.49			30.84	1.18		442.53				1.262	2.251	3.760			
L6L7	Lower-Chord	167.49			30.84	1.18		354.00				1.262	1.365	2.279			
U1U2	Upper-Chord	-239.93	-43.94	1.18			-682.00					1.262	2.602	4.345			
U2U3	Upper-Chord	-265.06	-48.12	1.18			-671.60					1.262	2.099	3.505			
U3U4	Upper-Chord	-268.72	-43.82	1.18			-672.28					1.262	2.276	3.801			
U4U5	Upper-Chord	-265.06	-48.12	1.18			-671.60					1.262	2.099	3.505			
U5U6	Upper-Chord	-239.93	-43.94	1.18			-682.00					1.262	2.602	4.345			
L1U1	Vertical	49.01			34.40	1.30		186.00				1.262	0.998	1.667			
L2U2	Vertical	-17.65	-14.42	1.23	19.61	1.28	-202.00	202.00				1.262	3.195	5.335			
L3U3	Vertical	19.29	-5.12	1.26	12.61	1.24	-217.41	219.78				1.262	4.532	7.568			
L4U4	Vertical	19.29	-5.12	1.26	12.61	1.24	-223.00	223.00				1.262	4.607	7.693			
L5U5	Vertical	-17.65	-14.42	1.23	19.61	1.28	-223.00	219.78				1.262	3.453	5.767			
L6U6	Vertical	49.01			34.40	1.30		186.00				1.262	0.998	1.667			
L0U1	Diagonal	-248.99	-45.84	1.18			-631.00					1.262	2.070	3.457			
U6L7	Diagonal	-248.99	-45.84	1.18			-631.00					1.262	2.070	3.457			
L2U1	Diagonal	98.03	-12.25	1.30	24.91	1.20	-162.07	260.00				1.262	1.616	2.699			
L3U2	Diagonal	45.01	-17.97	1.28	21.76	1.22	-202.53	219.78				1.262	2.212	3.694			
L4U3	Diagonal	9.23	-8.54	1.25	12.00	1.25	-81.56	148.00				1.262	3.099	5.175			
L3U4	Diagonal	9.23	-8.54	1.25	12.00	1.25	-81.56	159.39				1.262	3.099	5.175			
L4U5	Diagonal	45.01	-17.97	1.28	21.76	1.22	-202.53	219.78				1.262	2.212	3.694			
L5U6	Diagonal	98.03	-12.25	1.30	24.91	1.20	-162.07	260.00				1.262	1.616	2.699			

Support	LL Reaction (kip)	I.F.

Support	LL Reaction (kip)	I.F.
L0	39.25	1.18
L7	39.25	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	167.49			52.00	1.18		398.00				1.262	1.071	1.788			
L1L2	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L2L3	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L3L4	Lower-Chord	257.31			76.36	1.18		633.27				1.262	1.208	2.018			
L4L5	Lower-Chord	233.43			72.37	1.18		591.69				1.262	1.230	2.054			
L5L6	Lower-Chord	167.49			52.00	1.18		442.53				1.262	1.335	2.230			
L6L7	Lower-Chord	167.49			52.00	1.18		354.00				1.262	0.809	1.351			
U1U2	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
U2U3	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U3U4	Upper-Chord	-268.72	-80.48	1.18			-672.28					1.262	1.239	2.070			
U4U5	Upper-Chord	-265.06	-82.04	1.18			-671.60					1.262	1.231	2.056			
U5U6	Upper-Chord	-239.93	-74.39	1.18			-682.00					1.262	1.537	2.566			
L1U1	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			
L2U2	Vertical	-17.65	-21.17	1.23	22.76	1.28	-202.00	202.00				1.262	2.518	4.205			
L3U3	Vertical	19.29	-6.49	1.26	17.01	1.24	-217.41	219.78				1.262	3.359	5.610			
L4U4	Vertical	19.29	-6.49	1.26	17.01	1.24	-223.00	223.00				1.262	3.415	5.703			
L5U5	Vertical	-17.65	-21.17	1.23	22.76	1.28	-223.00	219.78				1.262	2.813	4.698			
L6U6	Vertical	49.01			38.80	1.30		186.00				1.262	0.885	1.478			
L0U1	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829			
U6L7	Diagonal	-248.99	-86.67	1.18			-631.00					1.262	1.095	1.829			
L2U1	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611			
L3U2	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.483	2.476			
L4U3	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	148.00				1.262	2.400	4.008			
L3U4	Diagonal	9.23	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.400	4.008			
L4U5	Diagonal	45.01	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.483	2.476			
L5U6	Diagonal	98.03	-12.36	1.30	41.74	1.20	-162.07	260.00				1.262	0.965	1.611			

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00
 Adjacent Vehicle LL Factor = 0.00
Inventory:
 A1 = 1.30, A2 = 2.17
Operating:
 A1 = 1.30, A2 = 1.30
 Note: Rating factor is outputted as 99.00 when it is greater than 99

Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	167.49			52.65	1.18		398.00				1.262	1.057	1.766			
L1L2	Lower-Chord	167.49			52.65	1.18		442.53				1.262	1.318	2.202			
L2L3	Lower-Chord	233.43			72.25	1.18		591.69				1.262	1.232	2.057			
L3L4	Lower-Chord	257.31			74.22	1.18		633.27				1.262	1.243	2.076			
L4L5	Lower-Chord	233.43			72.25	1.18		591.69				1.262	1.232	2.057			
L5L6	Lower-Chord	167.49			52.65	1.18		442.53				1.262	1.318	2.202			
L6L7	Lower-Chord	167.49			52.65	1.18		354.00				1.262	0.799	1.335			
U1U2	Upper-Chord	-239.93	-74.26	1.18			-682.00					1.262	1.539	2.570			
U2U3	Upper-Chord	-265.06	-80.88	1.18			-671.60					1.262	1.249	2.085			
U3U4	Upper-Chord	-268.72	-78.22	1.18			-672.28					1.262	1.275	2.129			
U4U5	Upper-Chord	-265.06	-80.88	1.18			-671.60					1.262	1.249	2.085			
U5U6	Upper-Chord	-239.93	-74.26	1.18			-682.00					1.262	1.539	2.570			
L1U1	Vertical	49.01			44.00	1.30		186.00				1.262	0.780	1.303			
L2U2	Vertical	-17.65	-23.94	1.23	29.10	1.28	-202.00	202.00				1.262	2.153	3.595			
L3U3	Vertical	19.29	-8.23	1.26	20.24	1.24	-217.41	219.78				1.262	2.822	4.713			
L4U4	Vertical	19.29	-8.23	1.26	20.24	1.24	-223.00	223.00				1.262	2.869	4.791			
L5U5	Vertical	-17.65	-23.94	1.23	29.10	1.28	-223.00	219.78				1.262	2.327	3.886			
L6U6	Vertical	49.01			44.00	1.30		186.00				1.262	0.780	1.303			
L0U1	Diagonal	-248.99	-78.28	1.18			-631.00					1.262	1.212	2.025			
U6L7	Diagonal	-248.99	-78.28	1.18			-631.00					1.262	1.212	2.025			
L2U1	Diagonal	98.03	-14.82	1.30	42.11	1.20	-162.07	260.00				1.262	0.956	1.597			
L3U2	Diagonal	45.01	-26.67	1.28	36.11	1.22	-202.53	219.78				1.262	1.333	2.226			
L4U3	Diagonal	9.23	-13.71	1.25	19.27	1.25	-81.56	148.00				1.262	1.930	3.223			
L3U4	Diagonal	9.23	-13.71	1.25	19.27	1.25	-81.56	159.39				1.262	1.930	3.223			
L4U5	Diagonal	45.01	-26.67	1.28	36.11	1.22	-202.53	219.78				1.262	1.333	2.226			
L5U6	Diagonal	98.03	-14.82	1.30	42.11	1.20	-162.07	260.00				1.262	0.956	1.597			

Support	LL Reaction (kip)	I.F.
L0	67.52	1.18
L7	67.52	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Bridge ID :026-38-03430AGusset-Det
 Bridge : NBI=007040 (STT)
 StructDef : Nodamage7PanelSteelTruss
 User : Bridge
 Date : Friday, March 23, 2018 09:19:31
 File : RatingResults.XML
 Analysis Preference Setting : None

NBI Structure ID :007040
 Bridge Alt :
 Member : North

Overall Load Factor Rating Summary

Live Load	Live Load Type	Inv Element	Inv RF	Inv Capacity (Ton)	Opr Element	Opr RF	Opr Capacity (Ton)	Legal Opr Element	Legal Opr RF	Legal Opr Capacity (Ton)	Permit Inv Element	Permit Inv RF	Permit Inv Capacity (Ton)	Permit Opr Element	Permit Opr RF	Permit Opr Capacity (Ton)	Impact	Lane
H 20-44 - Lane	Design Lane	L3L4	1.060	21.20	L3L4	1.770	35.40										As Requested	As Requested
H 20-44 - Lane	Design Lane	L3L4	1.060	21.20	L3L4	1.770	35.40										With Impact	Multi-Lane
H 20-44 - Truck	Design Truck	L6U6	1.563	31.26	L6U6	2.610	52.20										As Requested	As Requested
H 20-44 - Truck	Design Truck	L6U6	1.563	31.26	L6U6	2.610	52.20										With Impact	Multi-Lane
HS 20-44 - Lane	Design Lane	L3L4	1.060	38.16	L3L4	1.770	63.73										As Requested	As Requested
HS 20-44 - Lane	Design Lane	L3L4	1.060	38.16	L3L4	1.770	63.73										With Impact	Multi-Lane
HS 20-44 - Truck	Design Truck	L2L3	1.089	39.20	L2L3	1.818	65.46										As Requested	As Requested
HS 20-44 - Truck	Design Truck	L2L3	1.089	39.20	L2L3	1.818	65.46										With Impact	Multi-Lane

Live Load: H 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force Comp. (kip)	IF	Tens. (kip)	IF	Capacity Comp. (kip)	Tens. (kip)	Adj Veh Demand Comp. (kip)	Tens. (kip)	One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
L0L1	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L1L2	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L2L3	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L3L4	Lower-Chord	285.52			76.36	1.18		633.27				1.262	1.060	1.770			
L4L5	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L5L6	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L6L7	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
U1U2	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
U2U3	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U3U4	Upper-Chord	-298.45	-80.48	1.18			-672.28					1.262	1.091	1.822			
U4U5	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U5U6	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
L1U1	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			
L2U2	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	222.75				1.262	2.804	4.682			
L3U3	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	222.75				1.262	3.351	5.596			
L4U4	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	222.75				1.262	3.351	5.596			
L5U5	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	222.75				1.262	2.804	4.682			
L6U6	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																
L0U1	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186		
U6L7	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186		
L2U1	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223		
L3U2	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.452	2.424		
L4U3	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062		
L3U4	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062		
L4U5	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.452	2.424		
L5U6	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223		

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: H 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
L1L2	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
L2L3	Lower-Chord	259.19			42.75	1.18		591.69				1.262	1.841	3.074			
L3L4	Lower-Chord	285.52			41.58	1.18		633.27				1.262	1.947	3.251			
L4L5	Lower-Chord	259.19			42.75	1.18		591.69				1.262	1.841	3.074			
L5L6	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
L6L7	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
U1U2	Upper-Chord	-266.40	-43.94	1.18			-682.00					1.262	2.360	3.941			
U2U3	Upper-Chord	-294.26	-48.12	1.18			-671.60					1.262	1.855	3.099			
U3U4	Upper-Chord	-298.45	-43.82	1.18			-672.28					1.262	2.004	3.346			
U4U5	Upper-Chord	-294.26	-48.12	1.18			-671.60					1.262	1.855	3.099			
U5U6	Upper-Chord	-266.40	-43.94	1.18			-682.00					1.262	2.360	3.941			
L1U1	Vertical	55.27			34.40	1.30		263.34				1.262	1.563	2.610			
L2U2	Vertical	-18.84	-14.42	1.23	19.61	1.28	-223.86	222.75				1.262	3.514	5.868			
L3U3	Vertical	21.95	-5.12	1.26	12.61	1.24	-217.41	222.75				1.262	4.520	7.549			
L4U4	Vertical	21.95	-5.12	1.26	12.61	1.24	-217.41	222.75				1.262	4.520	7.549			
L5U5	Vertical	-18.84	-14.42	1.23	19.61	1.28	-223.86	222.75				1.262	3.514	5.868			
L6U6	Vertical	55.27			34.40	1.30		263.34				1.262	1.563	2.610			
L0U1	Diagonal	-276.50	-45.84	1.18			-726.78					1.262	2.475	4.133			
U6L7	Diagonal	-276.50	-45.84	1.18			-726.78					1.262	2.475	4.133			
L2U1	Diagonal	108.81	-12.25	1.30	24.91	1.20	-162.07	324.39				1.262	2.230	3.725			
L3U2	Diagonal	49.90	-17.97	1.28	21.76	1.22	-202.53	222.75				1.262	2.166	3.617			
L4U3	Diagonal	10.46	-8.54	1.25	12.00	1.25	-81.56	159.39				1.262	3.141	5.245			
L3U4	Diagonal	10.46	-8.54	1.25	12.00	1.25	-81.56	159.39				1.262	3.141	5.245			
L4U5	Diagonal	49.90	-17.97	1.28	21.76	1.22	-202.53	222.75				1.262	2.166	3.617			
L5U6	Diagonal	108.81	-12.25	1.30	24.91	1.20	-162.07	324.39				1.262	2.230	3.725			

Support	LL Reaction (kip)	I.F.

Support	LL Reaction (kip)	I.F.
L0	39.25	1.18
L7	39.25	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L1L2	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L2L3	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L3L4	Lower-Chord	285.52			76.36	1.18		633.27				1.262	1.060	1.770			
L4L5	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L5L6	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L6L7	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
U1U2	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
U2U3	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U3U4	Upper-Chord	-298.45	-80.48	1.18			-672.28					1.262	1.091	1.822			
U4U5	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U5U6	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
L1U1	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			
L2U2	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	222.75				1.262	2.804	4.682			
L3U3	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	222.75				1.262	3.351	5.596			
L4U4	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	222.75				1.262	3.351	5.596			
L5U5	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	222.75				1.262	2.804	4.682			
L6U6	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			
L0U1	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186			
U6L7	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186			
L2U1	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223			
L3U2	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.452	2.424			
L4U3	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062			
L3U4	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062			
L4U5	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	222.75				1.262	1.452	2.424			
L5U6	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223			

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00
 Adjacent Vehicle LL Factor = 0.00
Inventory:
 A1 = 1.30, A2 = 2.17
Operating:
 A1 = 1.30, A2 = 1.30
 Note: Rating factor is outputted as 99.00 when it is greater than 99

Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
L1L2	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
L2L3	Lower-Chord	259.19			72.25	1.18		591.69				1.262	1.089	1.818			
L3L4	Lower-Chord	285.52			74.22	1.18		633.27				1.262	1.091	1.821			
L4L5	Lower-Chord	259.19			72.25	1.18		591.69				1.262	1.089	1.818			
L5L6	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
L6L7	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
U1U2	Upper-Chord	-266.40	-74.26	1.18			-682.00					1.262	1.396	2.331			
U2U3	Upper-Chord	-294.26	-80.88	1.18			-671.60					1.262	1.104	1.843			
U3U4	Upper-Chord	-298.45	-78.22	1.18			-672.28					1.262	1.122	1.875			
U4U5	Upper-Chord	-294.26	-80.88	1.18			-671.60					1.262	1.104	1.843			
U5U6	Upper-Chord	-266.40	-74.26	1.18			-682.00					1.262	1.396	2.331			
L1U1	Vertical	55.27			44.00	1.30		263.34				1.262	1.222	2.041			
L2U2	Vertical	-18.84	-23.94	1.23	29.10	1.28	-223.86	222.75				1.262	2.368	3.954			
L3U3	Vertical	21.95	-8.23	1.26	20.24	1.24	-217.41	222.75				1.262	2.815	4.701			
L4U4	Vertical	21.95	-8.23	1.26	20.24	1.24	-217.41	222.75				1.262	2.815	4.701			
L5U5	Vertical	-18.84	-23.94	1.23	29.10	1.28	-223.86	222.75				1.262	2.368	3.954			
L6U6	Vertical	55.27			44.00	1.30		263.34				1.262	1.222	2.041			
L0U1	Diagonal	-276.50	-78.28	1.18			-726.78					1.262	1.449	2.420			
U6L7	Diagonal	-276.50	-78.28	1.18			-726.78					1.262	1.449	2.420			
L2U1	Diagonal	108.81	-14.82	1.30	42.11	1.20	-162.07	324.39				1.262	1.319	2.203			
L3U2	Diagonal	49.90	-26.67	1.28	36.11	1.22	-202.53	222.75				1.262	1.305	2.179			
L4U3	Diagonal	10.46	-13.71	1.25	19.27	1.25	-81.56	159.39				1.262	1.956	3.267			
L3U4	Diagonal	10.46	-13.71	1.25	19.27	1.25	-81.56	159.39				1.262	1.956	3.267			
L4U5	Diagonal	49.90	-26.67	1.28	36.11	1.22	-202.53	222.75				1.262	1.305	2.179			
L5U6	Diagonal	108.81	-14.82	1.30	42.11	1.20	-162.07	324.39				1.262	1.319	2.203			

Support	LL Reaction (kip)	I.F.
L0	67.52	1.18
L7	67.52	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Bridge ID :026-38-03430AGusset-Det
 Bridge : NBI=007040 (STT)
 StructDef : Nodamage7PanelSteelTruss
 User : Bridge
 Date : Friday, March 23, 2018 09:19:33
 File : RatingResults.XML
 Analysis Preference Setting : None

NBI Structure ID :007040
 Bridge Alt :
 Member : South

Overall Load Factor Rating Summary

Live Load	Live Load Type	Inv Element	Inv RF	Inv Capacity (Ton)	Opr Element	Opr RF	Opr Capacity (Ton)	Legal Opr Element	Legal Opr RF	Legal Opr Capacity (Ton)	Permit Inv Element	Permit Inv RF	Permit Inv Capacity (Ton)	Permit Opr Element	Permit Opr RF	Permit Opr Capacity (Ton)	Impact	Lane
H 20-44 - Lane	Design Lane	L3L4	1.060	21.20	L3L4	1.770	35.40										As Requested	As Requested
H 20-44 - Lane	Design Lane	L3L4	1.060	21.20	L3L4	1.770	35.40										With Impact	Multi-Lane
H 20-44 - Truck	Design Truck	L6U6	1.563	31.26	L6U6	2.610	52.20										As Requested	As Requested
H 20-44 - Truck	Design Truck	L6U6	1.563	31.26	L6U6	2.610	52.20										With Impact	Multi-Lane
HS 20-44 - Lane	Design Lane	L3L4	1.060	38.16	L3L4	1.770	63.73										As Requested	As Requested
HS 20-44 - Lane	Design Lane	L3L4	1.060	38.16	L3L4	1.770	63.73										With Impact	Multi-Lane
HS 20-44 - Truck	Design Truck	L2L3	1.089	39.20	L2L3	1.818	65.46										As Requested	As Requested
HS 20-44 - Truck	Design Truck	L2L3	1.089	39.20	L2L3	1.818	65.46										With Impact	Multi-Lane

Live Load: H 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force Comp. (kip)	IF	Tens. (kip)	IF	Capacity Comp. (kip)	Tens. (kip)	Adj Veh Demand Comp. (kip)	Tens. (kip)	One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
L0L1	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L1L2	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L2L3	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L3L4	Lower-Chord	285.52			76.36	1.18		633.27				1.262	1.060	1.770			
L4L5	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L5L6	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L6L7	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
U1U2	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
U2U3	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U3U4	Upper-Chord	-298.45	-80.48	1.18			-672.28					1.262	1.091	1.822			
U4U5	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U5U6	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
L1U1	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			
L2U2	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	219.78				1.262	2.804	4.682			
L3U3	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	219.78				1.262	3.300	5.510			
L4U4	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	219.78				1.262	3.300	5.510			
L5U5	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	219.78				1.262	2.804	4.682			
L6U6	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 Inventory: A1 = 1.30, A2 = 2.17 Operating: A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																
L0U1	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186		
U6L7	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186		
L2U1	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223		
L3U2	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.424	2.379		
L4U3	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062		
L3U4	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062		
L4U5	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.424	2.379		
L5U6	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223		

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: H 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
L1L2	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
L2L3	Lower-Chord	259.19			42.75	1.18		591.69				1.262	1.841	3.074			
L3L4	Lower-Chord	285.52			41.58	1.18		633.27				1.262	1.947	3.251			
L4L5	Lower-Chord	259.19			42.75	1.18		591.69				1.262	1.841	3.074			
L5L6	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
L6L7	Lower-Chord	186.00			30.84	1.18		442.53				1.262	2.010	3.357			
U1U2	Upper-Chord	-266.40	-43.94	1.18			-682.00					1.262	2.360	3.941			
U2U3	Upper-Chord	-294.26	-48.12	1.18			-671.60					1.262	1.855	3.099			
U3U4	Upper-Chord	-298.45	-43.82	1.18			-672.28					1.262	2.004	3.346			
U4U5	Upper-Chord	-294.26	-48.12	1.18			-671.60					1.262	1.855	3.099			
U5U6	Upper-Chord	-266.40	-43.94	1.18			-682.00					1.262	2.360	3.941			
L1U1	Vertical	55.27			34.40	1.30		263.34				1.262	1.563	2.610			
L2U2	Vertical	-18.84	-14.42	1.23	19.61	1.28	-223.86	219.78				1.262	3.470	5.796			
L3U3	Vertical	21.95	-5.12	1.26	12.61	1.24	-217.41	219.78				1.262	4.451	7.434			
L4U4	Vertical	21.95	-5.12	1.26	12.61	1.24	-217.41	219.78				1.262	4.451	7.434			
L5U5	Vertical	-18.84	-14.42	1.23	19.61	1.28	-223.86	219.78				1.262	3.470	5.796			
L6U6	Vertical	55.27			34.40	1.30		263.34				1.262	1.563	2.610			
L0U1	Diagonal	-276.50	-45.84	1.18			-726.78					1.262	2.475	4.133			
U6L7	Diagonal	-276.50	-45.84	1.18			-726.78					1.262	2.475	4.133			
L2U1	Diagonal	108.81	-12.25	1.30	24.91	1.20	-162.07	324.39				1.262	2.230	3.725			
L3U2	Diagonal	49.90	-17.97	1.28	21.76	1.22	-202.53	219.78				1.262	2.125	3.549			
L4U3	Diagonal	10.46	-8.54	1.25	12.00	1.25	-81.56	159.39				1.262	3.141	5.245			
L3U4	Diagonal	10.46	-8.54	1.25	12.00	1.25	-81.56	159.39				1.262	3.141	5.245			
L4U5	Diagonal	49.90	-17.97	1.28	21.76	1.22	-202.53	219.78				1.262	2.125	3.549			
L5U6	Diagonal	108.81	-12.25	1.30	24.91	1.20	-162.07	324.39				1.262	2.230	3.725			

Support	LL Reaction (kip)	I.F.

Support	LL Reaction (kip)	I.F.
L0	39.25	1.18
L7	39.25	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Lane (Design Lane)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00 Adjacent Vehicle LL Factor = 0.00 <u>Inventory:</u> A1 = 1.30, A2 = 2.17 <u>Operating:</u> A1 = 1.30, A2 = 1.30 Note: Rating factor is outputted as 99.00 when it is greater than 99																	
Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L1L2	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L2L3	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L3L4	Lower-Chord	285.52			76.36	1.18		633.27				1.262	1.060	1.770			
L4L5	Lower-Chord	259.19			72.37	1.18		591.69				1.262	1.087	1.815			
L5L6	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
L6L7	Lower-Chord	186.00			52.00	1.18		442.53				1.262	1.192	1.991			
U1U2	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
U2U3	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U3U4	Upper-Chord	-298.45	-80.48	1.18			-672.28					1.262	1.091	1.822			
U4U5	Upper-Chord	-294.26	-82.04	1.18			-671.60					1.262	1.088	1.817			
U5U6	Upper-Chord	-266.40	-74.39	1.18			-682.00					1.262	1.394	2.327			
L1U1	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			
L2U2	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	219.78				1.262	2.804	4.682			
L3U3	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	219.78				1.262	3.300	5.510			
L4U4	Vertical	21.95	-6.49	1.26	17.01	1.24	-217.41	219.78				1.262	3.300	5.510			
L5U5	Vertical	-18.84	-21.17	1.23	22.76	1.28	-223.86	219.78				1.262	2.804	4.682			
L6U6	Vertical	55.27			38.80	1.30		263.34				1.262	1.386	2.314			
L0U1	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186			
U6L7	Diagonal	-276.50	-86.67	1.18			-726.78					1.262	1.309	2.186			
L2U1	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223			
L3U2	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.424	2.379			
L4U3	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062			
L3U4	Diagonal	10.46	-11.02	1.25	15.89	1.25	-81.56	159.39				1.262	2.432	4.062			
L4U5	Diagonal	49.90	-20.41	1.28	32.46	1.22	-202.53	219.78				1.262	1.424	2.379			
L5U6	Diagonal	108.81	-12.36	1.30	41.74	1.20	-162.07	324.39				1.262	1.331	2.223			

Support	LL Reaction (kip)	I.F.
L0	74.00	1.18
L7	74.00	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action

Live Load: HS 20-44 - Truck (Design Truck)

Detailed Truss Member Rating Results

LL Scale Factor = 1.00
 Adjacent Vehicle LL Factor = 0.00
Inventory:
 A1 = 1.30, A2 = 2.17
Operating:
 A1 = 1.30, A2 = 1.30
 Note: Rating factor is outputted as 99.00 when it is greater than 99

Member	Truss Element	DL Force (kip)	LL Force				Capacity		Adj Veh Demand		One Lane LLDF	Multi Lane LLDF	Inv RF	Opr RF	Legal Opr RF	Permit Inv RF	Permit Opr RF
			Comp. (kip)	IF	Tens. (kip)	IF	Comp. (kip)	Tens. (kip)	Comp. (kip)	Tens. (kip)							
L0L1	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
L1L2	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
L2L3	Lower-Chord	259.19			72.25	1.18		591.69				1.262	1.089	1.818			
L3L4	Lower-Chord	285.52			74.22	1.18		633.27				1.262	1.091	1.821			
L4L5	Lower-Chord	259.19			72.25	1.18		591.69				1.262	1.089	1.818			
L5L6	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
L6L7	Lower-Chord	186.00			52.65	1.18		442.53				1.262	1.177	1.966			
U1U2	Upper-Chord	-266.40	-74.26	1.18			-682.00					1.262	1.396	2.331			
U2U3	Upper-Chord	-294.26	-80.88	1.18			-671.60					1.262	1.104	1.843			
U3U4	Upper-Chord	-298.45	-78.22	1.18			-672.28					1.262	1.122	1.875			
U4U5	Upper-Chord	-294.26	-80.88	1.18			-671.60					1.262	1.104	1.843			
U5U6	Upper-Chord	-266.40	-74.26	1.18			-682.00					1.262	1.396	2.331			
L1U1	Vertical	55.27			44.00	1.30		263.34				1.262	1.222	2.041			
L2U2	Vertical	-18.84	-23.94	1.23	29.10	1.28	-223.86	219.78				1.262	2.339	3.906			
L3U3	Vertical	21.95	-8.23	1.26	20.24	1.24	-217.41	219.78				1.262	2.772	4.630			
L4U4	Vertical	21.95	-8.23	1.26	20.24	1.24	-217.41	219.78				1.262	2.772	4.630			
L5U5	Vertical	-18.84	-23.94	1.23	29.10	1.28	-223.86	219.78				1.262	2.339	3.906			
L6U6	Vertical	55.27			44.00	1.30		263.34				1.262	1.222	2.041			
L0U1	Diagonal	-276.50	-78.28	1.18			-726.78					1.262	1.449	2.420			
U6L7	Diagonal	-276.50	-78.28	1.18			-726.78					1.262	1.449	2.420			
L2U1	Diagonal	108.81	-14.82	1.30	42.11	1.20	-162.07	324.39				1.262	1.319	2.203			
L3U2	Diagonal	49.90	-26.67	1.28	36.11	1.22	-202.53	219.78				1.262	1.280	2.138			
L4U3	Diagonal	10.46	-13.71	1.25	19.27	1.25	-81.56	159.39				1.262	1.956	3.267			
L3U4	Diagonal	10.46	-13.71	1.25	19.27	1.25	-81.56	159.39				1.262	1.956	3.267			
L4U5	Diagonal	49.90	-26.67	1.28	36.11	1.22	-202.53	219.78				1.262	1.280	2.138			
L5U6	Diagonal	108.81	-14.82	1.30	42.11	1.20	-162.07	324.39				1.262	1.319	2.203			

Support	LL Reaction (kip)	I.F.
L0	67.52	1.18
L7	67.52	1.18

LLDF	Single Lane	Multi Lane
Force		1.262
Deflection		2.000

Panel Point Shear Action